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P R E F A C E .

IN Spencer's Treatise on Education it is held that all should endeavor to acquire that kind of knowledge which is of the highest practical value ; and the philosopher, in considering what men and women should study, naturally gives the first place to those parts of knowledge whose primary objects are to keep men alive, and in such a state of physical and mental efficiency as fits them for a proper discharge of their duties to their families and to society. It is of little use that we acquire accomplishments fitting us to shine in the world, if our sphere is to be an invalid's room ; and there is small advantage in the knowledge of the ways even in which men make money, if ignorance of the conditions of our own life induces disease that makes it impossible to enjoy the wealth we may secure.

How to keep alive, therefore, and how to shun or combat the commoner perils that threaten health, are the first things that every one should be taught ; and we present an outline of this knowledge, in the full appreciation of its importance.

Physiology, for some time an exclusive science, is becoming a popular possession, and a knowledge of necessary hygienic rules flows from its principles ; but it has always been doubted, by physicians chiefly, whether the science of medicine proper should ever be presented in a popular form. The true answer

to this lies in the consideration of the evil of quackery. Upon what does quackery thrive? Ignorance—and ignorance of things that all might readily learn. And they who object to instructing the people in medicine, knowing all the time the full proportions of the harm done by quackery, would perpetuate the conditions that give that evil life.

“The writer of a good practical book on medicine,” says Latham, “who tells the world something that it did not know before, something of large application in fortifying or restoring the health, strength, and comfort, of man’s body and mind; or who, if he tell nothing new, *yet wisely sets in order what is already known, and gives it a more convenient adaptation to the same high purpose*; such a writer, in all just estimate of things, is second, and second only, to the great expounders of moral and religious truth.”

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SUMMARY OF PHYSIOLOGY.

DIGESTION.

DIGESTION is the process by which food is prepared in the alimentary canal, and put in such state that the organs more immediately charged with nutrition can absorb it. It is a complicated process, and one for the right performance of which many organs must act together. Digestion is not, as is popularly thought, exclusively the function of the stomach. It is begun while yet the food is in the mouth, and is continued in the parts of the intestine below the stomach, and the greater part of the canal may very properly be called the digestive tract. Certain portions of our food undergo change in the mouth, certain other portions in the stomach, and others again in the small intestine. Digestion in full, therefore, results from a division of labor between the several parts of the tract, one part not possessing the power to act upon those substances that should be digested in another part. Several juices, the secretions or peculiar product of different portions of the alimentary canal, are efficient agents in the process of digestion. These are :

1. The saliva, secreted in the mouth.
2. The gastric juice, secreted in the stomach.
3. The bile, formed in the liver, retained in the gall-bladder as in a reservoir, and discharged into the intestine at a short distance below the stomach while digestion is in progress.
4. The pancreatic juice, formed in the pancreas, and discharged into the intestine just below the stomach.
5. The intestinal juice, secreted in the part of the intestinal canal distinctively called the small intestine.

Food is first torn and crushed in the mouth by the action of the teeth; and this is a fact of no inconsiderable importance in the se-

ries, for food that is "bolted," or passed down to the stomach not thus crushed and torn, is often a serious embarrassment to the organ; and this embarrassment, and the overlabor and expansion it occasions, are the starting-points of dyspepsia. Good teeth, therefore, and the habit of using them well on the food, are of great consequence in the right performance of this function. During the time, moreover, in which the feeder supposes he is merely chewing his food, another process is going on. The saliva, or digestive fluid of the mouth, is then intimately mixed with the alimentary mass, by the action of the teeth, tongue, and cheeks, and this juice is thus enabled to act on all those particles of food over which it has any power.

All the materials of our food may be resolved into three principal kinds:

1. Starchy substances.
2. Albuminous substances.
3. Fatty substances.

Of these, the first kind only becomes fit for nutrition, when it has undergone certain changes which convert it into sugar; and the intimate mixture of the food with the juices of the mouth has some relation to this change. The change is not effected by these juices ordinarily, save in a slight degree; yet any person may observe that, if he chews a piece of dry bread in which he knows there has been no sugar put, and retains it in his mouth long enough to completely masticate it, it will have acquired a taste like sweetened cake. Sugar has been made in his mouth by the change of the starchy part of the flour. Perhaps it is by its action in rendering food more palatable, and so exciting the stomach to its reception, and stimulating the flow of gastric juice, that this fact assists in digestion.

Carried down to the stomach, the contact of the food stimulates the organ and provokes the flow from its internal surface of the gastric juice. This fluid possesses the property of reducing to a liquid form all that portion of our food that is called albuminous, mainly all animal substances, meat, eggs, etc. Its action is assisted by a regular churning movement of the stomach, which begins as soon as food is taken, and continues while there is any present. By this movement the food is carried alternately from one end of the stomach to the other; but the walls of the stomach, though they may be said to grasp the food in this movement, do not in any sense grind or crush it; the purpose of the movement being apparently, to more intimately mingle the juice and food together, to secure the effective action of the former on all the parts of the alimentary mass that it changes.

Dr. Beaumont studied this subject on a man in whom an injury had torn an opening through the side and into the stomach, and who recovered from the effects of the wound, though it healed so as to leave a permanent aperture. He made from his experiments an estimate of the comparative time necessary for the digestion in the stomach of various articles, the time ranging from one to five hours.

As the mass of food is in the stomach, this organ selects and digests the albuminous portions, and all the rest passes through into the small intestine, there to be acted upon by the other digestive fluids. Starch, which forms so large a part of our vegetable food, in potatoes, corn, wheat, and other grains, is promptly converted to sugar by the fluid of the small intestine, and is taken up by the system in that form. All fatty or oily matters also pass through the stomach unchanged, save that they are rendered liquid by the heat. These are acted upon especially by the pancreatic juice, which has the property of minutely dividing the oil-globules, and making with them a mixture in which the fatty substances are sustained in a milky-looking fluid, with which they are absorbed.

In the small intestine also all the mass comes into relation with the bile which begins to be discharged into this canal soon after food is taken. The mixture of the bile with the chyme, the name given to the fluid that results from digestion, at once induces peculiar changes. The chyme changes in color to a yellowish hue, loses its acid taste and sharp odor, and becomes bitter.

The exact office of the bile is still in some degree a mystery. This fluid is the peculiar secretion of the liver, and is poured into the intestine at a proper time to mingle with the digested food; and that is the last point to which animal chemistry has hitherto been able to trace the bile. It is not found below the small intestine, and therefore is not carried into that canal to be excreted or thrown out. Neither is it found in the vessels that absorb the nutritive contents of the intestine, and therefore it is not taken up or poured from the liver. These facts favor the thought that the small intestine is the ultimate destination of the bile, the place in which it performs its function; and that this function is to combine with and act upon the liquefied food, and to effect a change that is the last step in the preparation of food for the use of the system. It is, at all events, certain that food not thus acted upon by the liver does not sustain life; upon food absorbed from an intestine into which bile does not enter, an animal starves to death, as numerous experiments have shown.

ABSORPTION.

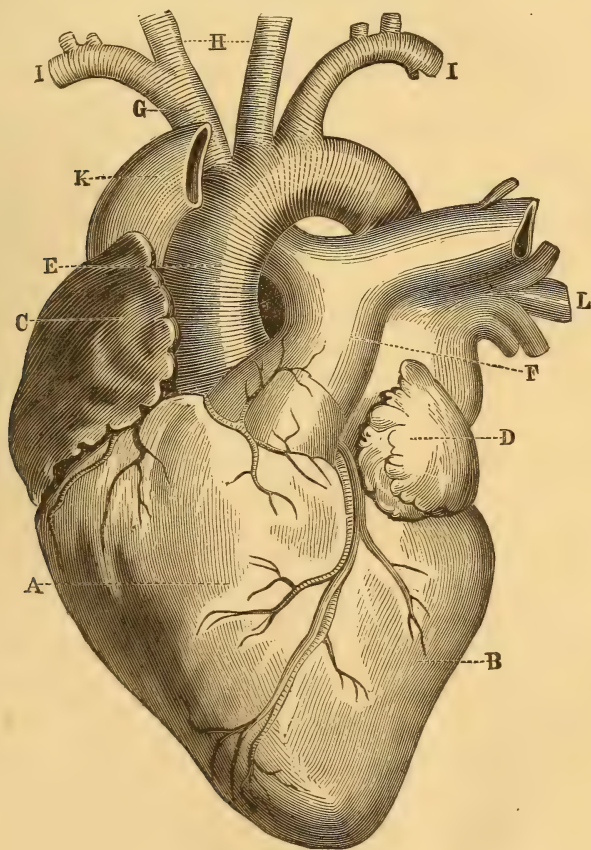
All the elements of food thus acted upon in the several parts of the digestive tract, digestion proper, or what is called primary digestion, is accomplished; that is, the nutritive substances have undergone those changes which prepare them for the use of the system, and make them fit to be carried into the blood, to become eventually part of the tissue of the body. Absorption is the next step. This takes place in the small intestine into which all the digested matter from the stomach passes, and where, as we have seen, occurs the digestion of oily and certain vegetable substances. The lower orifice of the stomach, that which opens into the small intestine, is called the pylorus (or door-keeper), from the ancient notion that this part of the stomach possessed a peculiar tactile quality, by which it could distinguish whether the substances pressed against it by the action of the whole organ were fit to pass through, and permitted the passage of what was thoroughly digested, returning those not in a satisfactory state. It is not safe to say that this old notion is altogether wrong, though many undigested substances do get past the door-keeper. The apparatus of absorption is practically the whole internal surface of the small intestine—an extensive surface, for it should be remembered this tube is nearly twenty feet in length. Certain glands, embedded in the lining membrane of this tube, absorb from it, like so many little sponges, all the oily portion of the food, which is called chyle; and these have therefore been called the chyliferous glands. They are also called the lacteals, because, seen in the red mass of the intestine during the progress of digestion, they appear of a milky whiteness, the little vessels that connect them running from one to another like milk-white threads. We have hitherto explained that it is the action of the pancreatic fluid upon the fatty substances that gives this milky appearance. Passing from one to another of these glands, and elaborated in this glandular system in some unknown way, the chyle at length comes to one larger than the rest, called the receptacle of the chyle, and thence by a direct duct is carried up through the thorax and discharged into the blood, by the subclavian vein, that is just anterior to the process of the oxygenation of the whole mass. But the glands that thus take up from the intestine the fatty parts of the food are not the most important of the organs of absorption; more important are the blood-vessels themselves, whose ultimate fine tubes are infinitely ramified in the mucous membrane. Through the permeable walls of these vessels the albuminous and saccharine substances in the intestine, mingled with or acted upon by the bile, pass directly into the circulating current.

And thus by the lacteals, and by the direct absorption of the vessels, are deposited in the blood all the nutritious portions of the food that we have traced from the mouth.

There are, however, non-nutritious portions—the tough vegetable fibre of husks and rinds, seeds of fruits, etc., and these pass on into the large intestine for excretion.

CIRCULATION OF THE BLOOD.

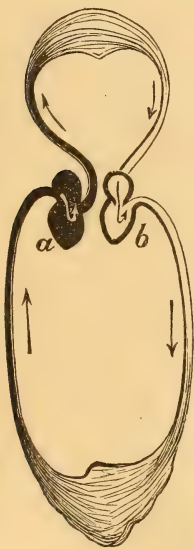
As the direct result of digestion and absorption, the nutritive material, therefore, is deposited in the current of the blood, to be carried to the various parts of the body.



THE HEART AND LARGE BLOOD-VESSELS.

A, right ventricle; B, left ventricle; C, right auricle; D, left auricle; E, aorta or great artery; F, pulmonary artery; G, arteria innominata; H, right and left carotids; I, subclavian arteries; K, vena cava superior; L, pulmonary veins.

In health the whole mass of the blood makes the circuit of the system in about three minutes, moving much more rapidly at what we may call the commencement of its course in the large arteries near the heart, and more slowly toward the end in the veins. Calling the heart the starting-point, we find the blood forced from it simultaneously in two streams—each current receiving its impulse from the heart's contraction. The heart contracts every time we can feel it beat in the side, and its beat is caused by the contraction which elongates and narrows the organ, and lifting its point brings it in contact with the walls of the chest. The heart contracts, therefore, in the full-grown healthy man from sixty to seventy times in a minute; and each contraction forces out, in two directions, a quantity of blood that differs with the size of the heart; between each contraction it dilates and receives a similar quantity.



a, right ventricle, surmounted by auricle, and discharging blood toward the lungs; *b*, left ventricle, surmounted by auricle, and discharging blood to system. The direction of the arrows indicates the course of the blood. Although the ventricles are here shown separately, it should be remembered that they are connected so that their contractions are simultaneous. Observe that the line of the circulation at *b* departs from the ventricle, the dark line at the other side enters the auricle, the line that departs from the opposite ventricle goes upward to the lungs.

One of the streams thus driven supplies what is called the systemic circulation, the other the pulmonary. As each of these is quite different in character, and more especially different in its vital purpose, it is well to consider them separately. For the systemic circulation, the blood leaves the heart by the left ventricle, and the aorta, the great artery of the chest; passing by this membranous tube down through the chest and abdomen, and by the lesser tubes that leave the great one going to every organ and every part on the way. Near the heart, other arteries go off from the aorta, especially the carotids, which carry blood to the brain and supply the head generally, and the arteries which supply the arms. In the descending course of the aorta it gives off the vessels that supply the stomach, liver, and intestines generally, and the kidneys. At its lower extremity this great artery divides and forms two smaller arteries, which turn respectively to the right and left, and, passing through the pelvis, form the

femoral arteries of either leg. In all the system of arteries the vessels are ramified in the body substantially on the same plan as the Croton pipes are laid in our city, the great principal main giving off pipes a little less, and these other smaller and smaller still, till every house and every closet in every house is fed with the fresh supply. So the blood-supply to the system is so complete that it is not possible for the point of a needle to find an interspace. All the blood thus supplied is arterial blood, that is, it is bright red in color, contains all the principles that are necessary to nourish and vitalize the body, and is capable of giving off to each part and to each organ those substances necessary to sustain it in its normal condition, or from which it must elaborate its own peculiar product or secretion. This is the blood that is the life of the flesh. From the same fluid the stomach makes gastric juice, and the gland in the corner of the eye makes tears.

Having thus passed from the heart and by all the arteries, to nourish all the parts of the body, the blood effects this purpose in a system of vessels designated capillaries. In this system of vessels, that are perceptible only under the microscope, the blood comes in actual contact with the tissues—for the walls are so thin, and so permeable to the fluids, that there is a regular exchange to and fro through these walls; all that the blood has to leave in a given part for nutrition and support passing out through the walls, while at the same time there passes in through the walls much that is to be taken away, and that is thus put into the blood vessels as into a waste-pipe. In the capillaries, therefore, the blood undergoes great modification. It passes into this system of vessels from the arteries, it is received from this system into the veins; in the arteries it was bright red in color, in the veins it is of a deep purplish blue. This change in color is the ordinary visible one, and this can of course only result from a great difference in composition between the fluid that passed into the capillaries and that which comes out. It is in some respects the difference between the Croton water that passes into the house, and the sewerage that passes out; in some respects only, for this is but the relation of analogy, as the comparison, though sufficient to give a familiar idea of the main point, is far from accurate. Passing from the capillaries into the veins, the blood goes again by these tubes to the heart, and is received into the part of that organ designated the right auricle, a little reservoir or receptacle at the upper part of the heart, on top, in fact, of the heart proper, and not of the same muscular and contractile character as that part of the organ which is divided into the two chambers known as the right and left ventricles. In this

receptacle the blood accumulates during one contraction of the heart; and from this, upon the dilatation of the heart, falls into the ventricle immediately beneath.

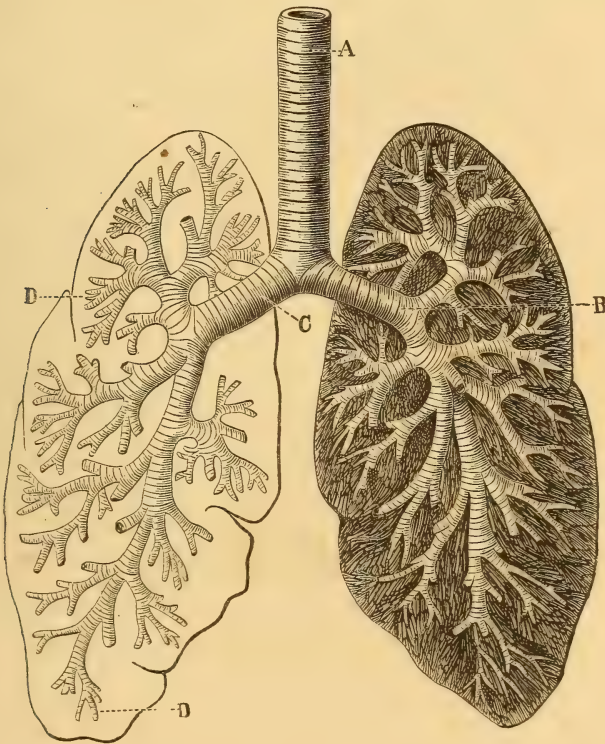
We have thus described the circuit of the blood in the greater or "systemic" circulation, the purpose of which is to supply to all parts of the body a fluid charged with nutritive and vitalizing substances. The other circuit is the pulmonary or lesser circulation, the purpose of which is to revitalize and restore to its original life-sustaining character the blood that has been returned to the heart from the greater circulation. This purpose is accomplished by exposing that blood to the action of the air in the lungs.

From the right auricle into which we had traced the blood that made the circuit of the body it falls into the ventricle of the same side. It is what is known as venous blood, a heavy purplish-blue fluid. The next contraction of the heart forces it out, and it is discharged by the pulmonary artery into the lungs, and into a system of minutely-ramifying vessels analogous to the capillaries, the correlatives of the capillaries. As in the capillaries the blood underwent changes that fed the system on one hand, and depurated it on the other, in these vessels it undergoes the opposite changes—parting with what is noxious and receiving that which it is again to transmit to the several parts of the body. About four times the capacity of a single chamber of the heart is exposed to the action of the air each time we draw our breath; and the blood thus exposed gives off carbonic-acid gas and receives oxygen gas. As the most obvious result of this, it again changes color, and becomes once more bright scarlet. Moving on through the pulmonary capillary tissue, it passes through the pulmonary veins and enters the heart at the left auricle, from which it falls into the left ventricle, and at the next contraction is again impelled forward in the greater circuit of the system.

Such are the main points in the story of the circulation of the blood, a wonderful story only in its simpler facts, still more wonderful in its minutiae; a chapter in science that has had its martyrs too: for, in 1553, Michael Servetus, a Spaniard, who announced the fact of the circulation, was burned at the stake; and in 1628 William Harvey, who fully demonstrated the fact, suffered for his discovery, for he was looked upon as a dreamer, and his practice, which before had been remunerative, declined till it was barely sufficient to maintain him.

RESPIRATION.

An important object, therefore, of the circulation of the blood is this: to pass the whole mass alternately through two different sets of capillary vessels, in one of which it comes in contact with the air, is purified, and receives oxygen; in the other, depositing this oxygen and receiving material, to be carried to the lungs and thrown out. Related to this function, then, and necessary to its complete perform-



SECTION OF LUNGS SHOWING RAMIFICATION OF BRONCHIAL TUBES.

A, trachea; B and C, bronchial tubes; D, ultimate bronchial tubes.

ance, is the function of respiration. Respiration is the regular drawing of air by the nose, or mouth, and windpipe, into the lungs, to meet the blue venous blood that each pulsation sends up from the right side of the heart. The elastic walls of the chest, and the strong muscle (the diaphragm), that is, a sort of arched floor to this cavity, constitute an apparatus for drawing in air. The diaphragm is at-

tached all around at the lower extremity of the walls of the chest, and arches up in the centre to a great convexity; contraction, shortening each fibre of this muscular sheet, and drawing from the fixed points of its attachments in the walls of the chest, obliterates the convexity, and the muscle becomes a flat plane: at the same moment other muscles, acting coördinately with this, expand the walls of the chest. By these means, the cavity is enlarged, and air, rushing in by the nose and mouth, fills it; then, in a moment, the contraction is relaxed; the diaphragm returns; the walls, no longer drawn away, come again to a certain line, and the air is forced out. This bellows movement occurs naturally about eighteen times in a minute; any injury, or any disease, that prevents its regular or proper performance, causes intense suffering, and any interruption of it, lasting for a few minutes, results in death by suffocation; for, air not reaching the lungs, the blue blood that comes up is not changed, and goes on into the circulation again, not bearing oxygen to feed and sustain the system, but bearing the carbonic acid, which should have been discharged in the lungs, and which poisons and destroys: not vitalized by the circulating fluid, but overpowered, the whole nervous apparatus, necessary to life, fails, and death ensues. From twenty to twenty-five cubic inches of air are changed in the lungs of a healthy adult at each act of tranquil breathing. This is not the capacity of the lung, for more can be taken in a forced inspiration; and there always remains in the lung a quantity of air beyond the power of the individual to expel. The lungs may be regarded as an aërial reservoir, the average capacity of which is about two hundred and twenty-five cubic inches; this reservoir is always full of air, in a condition to breathe—differing in temperature and other respects from the mass of the atmosphere; and this is kept in a certain standard condition of purity by the regular change, once in four seconds, of twenty-five cubic inches, or one-ninth the whole quantity.

Exercise has a great influence upon the health, as it affects this process. Ordinarily, regarded only as favoring the development of the muscular system through use, its greatest importance is in reality that, stimulating the action of the heart, it compels the man to breathe more, and thus forces the use by the system of an increased quantity of oxygen.

It is held by some physicians that certain of our more serious maladies depend upon a loss of relation between these correlative extremities of nutrition, the digestive and respiratory processes; that if respiration, in the discharge of noxious principles, and the oxygenation of the blood, do not keep pace with absorption, certain poisons causative of disease accumulate.

ASSIMILATION AND SECRETION.

Nutritive matters, flowing in the current of the blood, are at once the common property of the whole system; and each part or organ draws from this general source of supply the substances that are necessary to sustain and support it, to maintain its healthy condition, and to enable it to perform its peculiar duty or function. In this every part possesses a power to assimilate to its own structure and condition the elements carried to it in the blood, so that from the same fluid are formed bone to replace the waste of bony tissue, muscle, nerve, hair, skin—to replace the waste of these respectively. It is by these assimilations that the system is kept up; and thus each organ is for itself the final factor in the process that begins with digestion. The organs support the system and maintain its state of health by the elaboration of their several secretions. Thus it is, as we have seen, with the bile. The capillary vessels that ramify in the walls of the small intestine, taking up in a fluid form the nutritive substances of each meal, are only the little tributaries of a considerable stream that flows in what is called the portal vein. This vein, the blood in which is thus surcharged with nutriment, does not go directly to the heart, but enters the liver. All the material of nutrition, therefore, as it is absorbed from the intestine, is carried immediately into the liver, excepting only the fatty substance, which by the lacteal and thoracic duct are led a roundabout way, and discharged into the venous current above this organ. In the liver there is another set of capillaries, and through these the blood goes, to pass out at the upper surface, and hurry onward to the heart. But, in passing through the capillaries in the liver, the blood leaves much of the material it has brought from the intestines—the liver taking all that is necessary for the elaboration of bile. Bile, thus made, is again discharged into the intestine, to take part in the same process of digestion.

Bile is a greenish, viscid, bitter fluid, ninety per cent. water, which holds in solution minute portions of some peculiar salts of soda and potassa, and larger portions of phosphates of soda, lime, and magnesia, and some fats and fatty acids. But the analysis of bile gives no hint of that knowledge which would be most valuable in regard to it—exactly what function it performs in the support of the system.

Other secretions, which are elaborated by the different organs from the blood they receive, are: mucus, the viscid, adherent matter that moistens and lubricates the various mucous membranes; sebaceous matter and perspiration, which keep the skin soft, and in a

condition to carry out certain portions of the waste of the body; the tears, milk, saliva, and gastric and other intestinal juices.

How blood is made is still another of the mysteries of the system. Analysis here also tells but little. It first divides the blood into two parts: a fluid part, called serum or plasma, holding in solution fibrin, albumen, and certain salts; and a solid part, consisting of the blood-corpuscles, or red globules of the blood, infinitely little disks of firm matter that float freely in the fluid, and in quantity form about one-half the whole mass of the blood. No doubt the distribution of the different portions of nutritive material to the various parts of the system, that succeeds each process of digestion, relates to blood-making, and that, in the several organs through which they pass, the elements of food undergo the changes necessary to prepare each for enriching and supplying the vital stream; but the exact particulars of these changes, and the steps by which fat, fibrin, etc., are converted into the fluid that directly sustains life, are as yet unknown.

EXCRETION.

Strictly speaking, the secretion of each organ is excretion with regard to the whole mass of the blood; and when, from any derangement in any organ, it fails to secrete its peculiar product, certain substances are left in the blood, that perhaps always have a poisonous tendency, and lead to disease in proportion to their amount and character. This is one of the ways in which the disturbance of any part leads to disease of the whole system. But there are other processes in the animal economy that are especially termed excretions, because their more immediate import is, that they carry out of the system altogether the effete particles that are the consequence of the processes of nutrition—the ashes that result from keeping up the fire of life. Three great emunctories perform this duty. In one of these, the lungs, we have already described this action in speaking of respiration. At every breath, while we take in the fresh air, we give forth air that was previously taken in; and this latter is nearly without oxygen, and is charged with carbonic-acid gas instead; and this gas, the waste of the system, is brought up to the lungs by the venous blood, to be thus cast out. Another of the emunctories is the skin, which also carries off carbonic acid, practically taking part in the office of respiration. The kidneys are the third. These organs constantly depurate the blood. The blood is, to use a word that describes the fact, if it does not exactly explain the method, filtered through the kidneys, and as it leaves them it is purified of substances that, if they remained in the current, would destroy life

by their poisonous nature. From the kidneys they are passed out of the body in the urine. These substances are constantly received into the blood by the changes of the system, and must be as constantly taken away by the kidneys; hence any disease that incapacitates the kidneys from performing this office is almost necessarily fatal. The commonest of the diseases that has this result is Bright's disease of the kidney, which usually renders the kidney useless to the system, and then the poison accumulating in the blood kills.

FUNCTIONS OF THE NERVOUS SYSTEM.

We have thus glanced over the whole range of the nutritive functions, and considered the processes by which man is kept alive, and we have seen that all these steps are somewhat in a circle; the blood sustains by the nutrition it carries, and is sustained by that it gets; and digestion, circulation, and respiration, end and begin in one another. The stomach acts to feed the blood, that the blood may enable the stomach to act as before; the heart impels blood merely to get the power to impel blood again; and the question naturally arises, Where does this all begin? whence comes the first impulse? We now go one step nearer to the answer to this inevitable question in considering the nervous system; let us keep in mind, however, that it is only one step nearer; these questions involve the great secret of life—the origin and nature of the vital principle—and no man can fully answer them. Omnipotence has hitherto kept from us the knowledge necessary to that answer, and permitted us to soar toward this mystery only in vague guesses; but whatever this vital principle is, we know that the brain and nervous system constitute in us the apparatus by which it acts in the production of that round of vital phenomena that we sum up in the one word—life. This is the great function of the nervous system, to receive from without, or, in accordance with some law of its nature, fixed by the hand of God, to create the vital force, and transmit it to the several organs that without it would be mere inert substance. Exactly what the vital force is, would be the next question, for which, as yet, there can be no answer.

Impressions from without made upon the system are called sensations; but there is general sensation and special sensation; general sensation is the simplest consequence of vitality, and is the common attribute of every living animal body. It is an attribute also apparently of some plants, and the rudimentary nervous system, upon which this sensation depends, is the machinery by which natural principles act on the lowest forms of life. According to impressions made on this machinery, the oyster, lying at the bottom of the

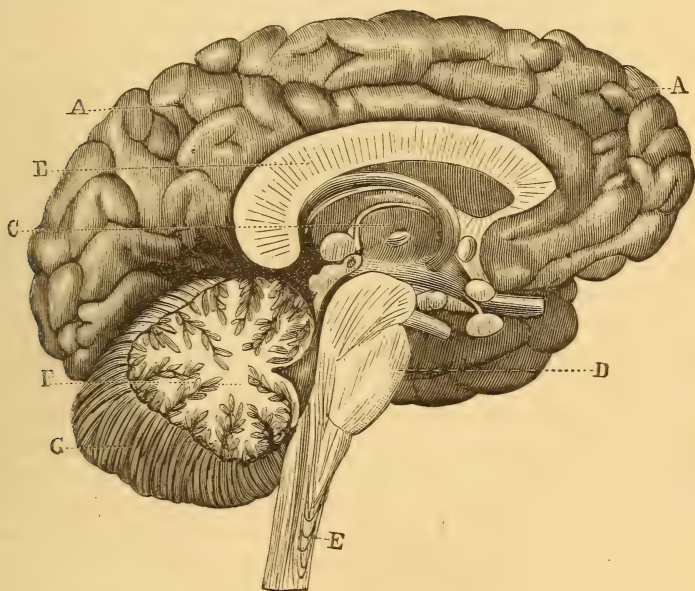
stream, receives the nutritious substance that comes in the water, or shuts his shell suddenly at the presence of danger. As we go higher in the scale of life, we find the machinery more and more developed—more complex, accurate, and wonderful, but working on the same principles, or an extension of those principles—till in man we reach that marvellous apparatus consisting collectively of the brain, spinal cord, and the innumerable nerve-filaments that connect these great centres with every part of the organization, making it a unit.

Special sensation, on the other hand, is the impression made on certain parts fitted to receive a particular stimulus; such an impression as light makes on the retina of the eye, sound on the nerves of the ear, odors on the organs of smell, and the sapid qualities of substances on those of taste.

From every part of the body thread-like nerve-fibres run to the brain and spinal cord, and from these other fibres run to every part of the body; and there is no perceptible difference between the fibres, but they are known by their relation to other parts, and known to be different by the various offices they perform. Impressions are received in the nervous centre by one set, and the impulse that this impression stirs is conveyed by the other, and becomes an act: thus, if a man puts out his hand, and touches a stove that he thought was cold, and it is unexpectedly hot, the hand is withdrawn; and the whole is done with such rapidity, that thought has had no time to take part. The act was involuntary; nay, if a man is dozing by the fire, and his foot touches it, the foot will be withdrawn then also, although the impression made has not awakened the sleeper. In these cases, the impression of the presence of that which would injure is carried by one set of nerves to the nervous centre, and thence instantly is sent forth by other nerves the impulse that moves the muscles necessary to draw the foot or hand away. Thought, as that word is applied specially to the mental actions of man, never intervenes here, for the same act occurs wherever there is life; and that queer bravo of the water, the crab, possesses this natural provision for his safety in the highest degree. This is unconscious nervous action; it exists where there is no brain, but only nerve-filaments, and a centre of low organization.

In the lower forms of vitality the occurrence begins and ends with the two facts—the irritation and the act; the nerves of sensation have simply the power to receive and convey an irritation, the others simply the power to transmit a motive impulse; and the lives of such creatures are only the succession of these events. But, as we go from lower to higher forms, we meet a new provision—the brain. The brain is a sort of store-house of records, in which, for the benefit

of the organization, is preserved the result of its experiences ; animals, therefore, provided with brains do not indefinitely repeat the same simple acts through a whole life. Having found by some experience what things give pain and what pleasure, and being able to remember and distinguish these things ; perceiving thus, more or less clearly, their relations to their surroundings ; acquiring a certain dim consciousness of what they are, they are enabled to govern their movements in the struggle for life with more or less intelligence and economy of vital force, according to the greater or less



SECTION OF THE BRAIN ON THE MEDIAN LINE.

A, internal face of the left hemisphere at the great longitudinal fissure ; B, corpus callosum ; C, optic thalamus ; D, medulla oblongata ; E, the spinal column ; F, section of the cerebellum exhibiting the so-called arbor vitæ ; G, left hemisphere of the cerebellum.

development of the brain. There is a well-organized brain in some of the lower animals, as the horse and dog ; but, in that distinguishing part of the brain the development of which depends upon vital experience, and which thus originates thought, man is separated from all others by an infinite distance. It is by this development he deserves his name ; for the word *man* is derived from a word signifying thought, and thus particularizes him as the thinking animal.

At the upper part of the spinal marrow, this so-called "marrow" is expanded, and spreads out into what becomes the base of the

brain. This expanded portion of the column is called the medulla oblongata. Immediately above it and behind is the cerebellum or little brain, growing out from the posterior aspect of the cord. Above all, and filling the whole upper and anterior part of the skull, are the two great lobes of the brain proper. From their shape these are called the hemispheres. The name is not correct. The two, as they lie side by side, and considered together, form one hemisphere; but if we use the plural, and thus recognize the division into right and left of these lobes, each lobe is nearer the half of a hemisphere. We note this point, to give an accurate idea of the form of these bodies.

In the endeavor to trace the intellectual power to its exact seat, and to locate the vital principle, science has given more or less importance to various divisions of the brain, assigning certain functions to each. It is not safe to accept such conclusions as part of positive knowledge. We know, however, that the direct relation of the organs of the special senses with the brain is by certain points on its under surface. The olfactory bulb, for instance, is a small body lying on the under surface of the hemispheres, and it is through impressions made on this that we become conscious of odors. The optic nerve proceeds from the base of the brain, but a little way behind this; the auditory nerve behind that again; but, in thus locating these, we do no more than show points of entrance into or departure from the brain, not seats of power. But it seems scarcely possible to doubt that the hemispheres are the seat of the intellect. The difference in the size of these is the characteristic difference between the brains of men and animals, and even between the brains of intellectual men and others. Idiocy coincides with a failure in their development; and the powers of perception, remembrance, and comparison, the elements of all reasoning, hold proportion with their size and health.

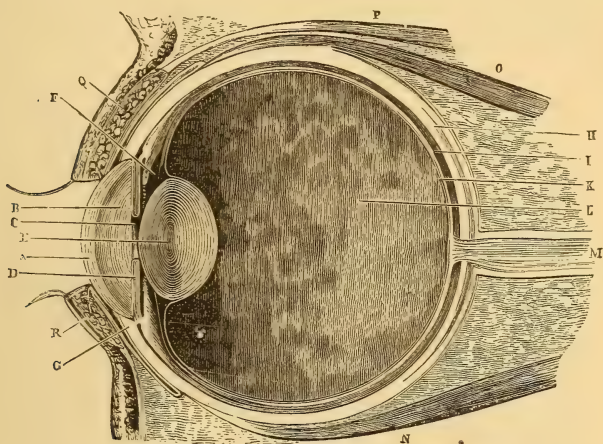
SPECIAL SENSES.

All impressions made upon the brain by external objects are received through the special senses—sight, smell, hearing, taste, and touch; and the combination of parts, by which these senses act, is called the apparatus of each.

THE EYE.

The essential parts of the apparatus of vision are the optic nerve and the ball of the eye. To the outer circumference of the eyeball are attached slender muscles that act like cords running on pulleys, by means of which we change the position of the globe;

but it is as a chamber, and not as a ball, that we should regard this organ, for it is its cavity that is important in the sense of sight. The cornea, in the centre of which is seen the pupil, is merely a transparent point in the wall of the chamber, by which the rays of light enter. The eye, therefore, bears in its function a general resemblance to the photographer's camera. The cavity of the ball is a



VERTICAL SECTION OF THE EYE IN THE MEDIAN LINE.

A, the cornea; B, the anterior chamber; C, the pupil; D, the iris; E, the crystalline lens; F, the zone of Zinn; G, the ciliary processes; H, the sclerotic coat; I, the choroid coat; K, the retina; L, the vitreous body; M, the optic nerve; N, the inferior rectus muscle; O, the superior rectus muscle; P, muscle levator palpebrae which raises the eyelid; Q, R, lacrimal glands and ducts.

darkened circular chamber, closed on every side; at one side, however, is a transparent point, through which rays of light penetrate, and this point may be made larger or smaller by the contraction or dilatation of the pupil. Just inside this transparent point, the rays of light, coming from every quarter, fall upon a lens, the crystalline lens, by which they are concentrated and thrown upon the posterior wall of the chamber. At this point in the wall of the cavity is the retina, an expansion of the optic nerve. On this nervous surface, sensitive to light, and created capable of receiving impressions by means of light, the rays refracted through the crystalline lens print an image of the body from which they are reflected. Thus, a picture of the thing presented to the eye is cast upon one extremity of a nervous cord, the other end of which communicates with the brain, and the further progress of perception science cannot follow.

We are apt, in our ordinary use of words, to discuss a single eye, but the two eyes are parts of one apparatus. They are combined

within the skull, the optic nerves crossing each other before they enter the brain; this explains the consentaneous action of the muscles moving either ball, as well as that active sympathy that weakens one when the other has received an injury.

Clear vision—focus—is dependent upon the movement of the crystalline lens, which is carried forward or backward by muscles of its own. When this body cannot be moved far enough in either direction to focus an object at a given point, the person is said to be short-sighted or far-sighted; and the cause is, the too great or too little convexity of the lens. The power of adaptation in the eye is analogous to what we see in the ordinary opera-glass, when a movable lens is carried nearer to the eye, or farther from it, according to the distance of the object we inspect.

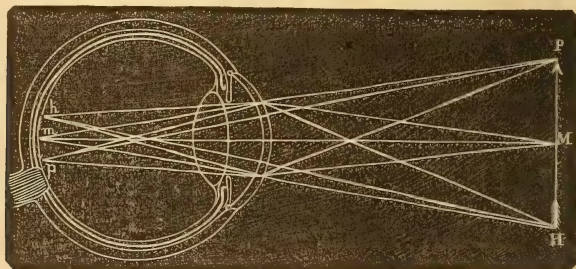


DIAGRAM SHOWING THE COURSE OF THE LUMINOUS RAYS IN THE EYE.

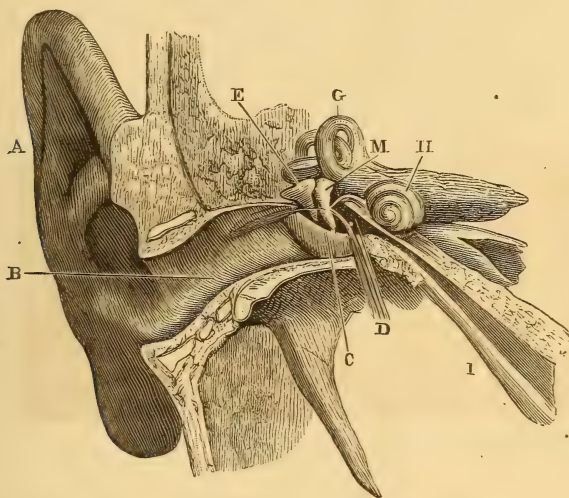
H M P, luminous rays reflected from an object; h m p, luminous rays refracted, and painting an inverted image on the retina.

Much of the nicety of vision, that seems to be quite unconscious, depends nevertheless upon education, as the judging of the distance of objects. Images, as they are thrown on the retina, are upside down, as on the object-glass of the camera. This is apparently rectified in the brain, but there have been persons in whom the rectification did not take place, and to whom consequently every object appeared inverted.

THE EAR.

The apparatus of the sense of hearing is comprised of the parts called the external, middle, and internal ear, and the auditory nerve. The parts of the ear, considered together, form a composite acoustical contrivance; and the auditory nerve, connecting the brain with this instrument, receives and transmits the impressions of sound. Sound results from a change of the relation between the air and the ear. As a boat passes down a stream, breaking the still surface of the water into waves or ripples, we see each successive ripple

strike its little blow on the beach: nearly this is what occurs in the air; the contact of bodies, or the swift moving of any single body, gives rise to waves, or ripples, in the air, that are called vibrations, and these waves strike on the tense, thin membrane, the ear-drum. From the funnel-like form and peculiar character of the external ear, the concha, its office is readily recognized. It is to catch and direct inwardly the most delicate movements impressed upon the air. Thus, in those in whom the sense of hearing, from age or other causes, has become less acute, this external ear is supplemented by the



SECTION SHOWING THE DIFFERENT PARTS OF THE EAR.

A, the external ear; B, the external auditory canal; C, the tympanum, or ear-drum; D, cavity of the tympanum; E and M, the incus and malleus (anvil and hammer), small bones of the middle ear which convey the vibrations from the tympanum across the cavity to the internal ear; G, semicircular canals; H, cochlea; these are parts of the labyrinth in which are the ramifications of the auditory nerve; I, the Eustachian tube, running from the middle ear to the throat.

larger funnel of an ear-trumpet. This trumpet performs, on a more extensive scale, the same office as the concha of the ear. From the concha to the middle ear runs the auditory canal, at the inner extremity of which is the tympanum, the membrane against which the vibrating air strikes. This membrane is the external wall of a cavity, in the thickest part of the bones of the skull, in which are all the other parts of the organ of hearing. In the simplest forms of the ear, such as occur in the lower animals, we find merely this cavity, filled with fluid, and with the branches of the auditory nerve distributed in the parts that line it. As we go higher, small bony substances are developed in the cavity, giving it new acoustic

powers; and in man, though the acoustical cavity is still the essential fact, it seems of less importance than the various instruments it contains, the semicircular canals, and the cochlea in which is the expansion of the auditory nerve, and the three minute bones which connect this with the tympanum—the malleus, the incus, and the stapes. This perfected structure enables man, not only to hear, but makes him aware of the direction, distance, and quality of sounds.

SMELL, TASTE, AND TOUCH.

These senses all act on the single principle of giving us information by direct contact of the sensitive nerve-filaments with substances or particles of substances: the differences by which one set of nerves gives information only of the odorous qualities of substances, another of their sapid qualities, and a third of their form, density, temperature, texture, etc., are stamped in the innate character of the nerves themselves, and are beyond our knowledge. The olfactory bulb of the brain rests on a bony plane, that we may call the floor of the skull, just above the nose, and fine filaments from it are sent through the bone, and thickly distributed in the mucous membrane lining the nasal cavities: thus, if we close the mouth, and draw breath forcibly through the nose, we bring in contact with this membrane a considerable quantity of air, and the nerve-filaments in the membrane detect the quality of the air with respect to odors; and thus also its respirable qualities, for the situation of this sense at the vestibule, as it were, of the respiratory tract, is a provision for our safety.

As the sense of smell is provided that we may not receive injury from the air, so the sense of taste is placed at the commencement of the digestive tract, to guard against the noxious qualities of substances apparently edible. Wild animals do not eat even the poisonous fruits that have an agreeable taste. Why sugar and salt affect this sense in their respectively different ways is all mystery. It has been conjectured that the difference depends upon the form of the ultimate particles of these bodies. Several nerves concur in this sense, and various parts of the cavity of the mouth. Though the sense is commonly associated only with the tongue, it resides also in the membrane covering the bony roof of the mouth; and, in making thorough examination of the taste of a substance, we bring the two parts together. Both the sense of smell and the sense of taste must concur for the perfect action of what is generally considered the sense of taste.

The sense of touch is a modification of common sensibility, and exists over the whole surface of the body, but in some parts is com-

paratively obtuse. The hand is, in a peculiar, yet hardly a special degree, the organ of this sense; as exercised in other parts, this sense gives us only the ideas of resistance and temperature, but the peculiar sensibility of the ends of the fingers, as well as the various ways in which these may be applied to the surfaces we investigate, conveys to the mind many other facts, and from these we reason out shape, size, and all other characters of bodies. It has been said that this sense is so delicate in some blind men, that they can detect those differences in surfaces that are dependent on color.

THE SYMPATHETIC SYSTEM.

Through the nervous system, of which the great centres are the brain and spine, and which is thence called the cerebro-spinal system; and especially through those adjuncts of that system, the organs of special sense, we become conscious of all that we know, and we perform all the acts of which we are capable. The functions of the nervous system have been classed as the functions of relation, because it is through them that we are social creatures; that we laugh or weep, buy or sell, will and work our own destiny. There is another nervous system, called the ganglionic, or system of organic life; it is the system of unconscious and involuntary vitality. Consciousness and will belong to the first system; but there are certain processes that go on outside of our knowledge, over which our will can have little or no effect, and that, whether we sleep, or wake, possess the right use of our reason, or are without it, continue the same. The heart beats, the blood circulates, the stomach digests its contents, the body grows, and merely by willing we can never assist nor prevent any of these. Comparatively little is known of the exact action of this system, still less that can give to the general reader a satisfactory idea of its place in the economy; but it is through this system that the sympathies of the various parts are so delicate and ready that one organ cannot be deranged in its actions without interfering in some degree with all the rest; for through it the stomach, heart, lungs, brain, and other organs, are joined in a common existence.

ANATOMICAL DESCRIPTION OF IMPORTANT ORGANS.

ABDOMEN.

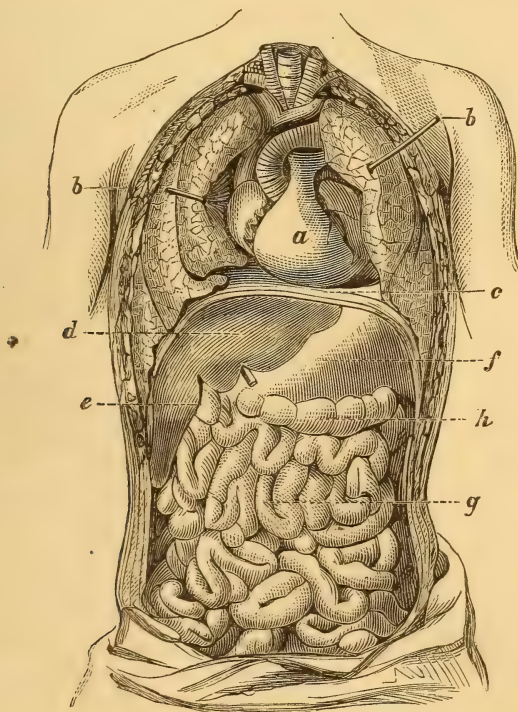
THIS division of the body contains the stomach, intestines, liver, spleen, pancreas, kidneys, etc. It is lined within by a membrane called the peritonæum, defended on either side by the short ribs, and covered with the abdominal muscles, which, by their relaxations and contractions, in the act of breathing, assist digestion, and give the necessary secretive and expulsive motions to the surrounding parts. The abdomen is bounded above by the diaphragm, and below by the pelvic bones, forming the pelvic cavity, with which it communicates; at the front and sides are the abdominal muscles, which also extend backward to the vertebral column, or spine. This is the largest cavity of the human body, and, for convenience of description, it has been mapped out into three zones, upper, middle, and lower, and several parts, or regions. That in the centre at the top is called the epigastric region; those on either side of it are the hypochondriac; next in the centre is the umbilical; right and left of which are the iliac; below these are the inguinal; and between them the hypogastric, forming the lower central division.

The abdominal contents are thus situated: Below the chest and next to the diaphragm is the liver, extending from beneath the right ribs across to the left, and having the largest development on the former side. Next to this is the stomach, the smaller end of which is situated in the epigastric and the larger in the left hypochondriac region, where it comes in contact with the spleen. Behind the stomach lies the pancreas. In the middle zone lies the large bowel, with a portion of the small intestines; and behind these, close to the spine, are the kidneys. The small intestines also

pass down the centre part of the inferior zone, as do laterally the ends of the large intestines, or colon; and there also we find, when it is distended, the upper portion of the bladder.

STOMACH.

This is a membranous bag, situated immediately under the diaphragm. It varies much in size, according to the amount of distention it undergoes. When not unnaturally distended, but containing an ordinary meal, it is about ten or twelve inches in length, and from four to four and a half inches in diameter at its widest part.



TRANSVERSE SECTION OF THE ABDOMINAL AND THORACIC CAVITIES.

a, the heart; *bb*, the lungs drawn aside to show the heart; *c*, the diaphragm, dividing the two cavities; *d*, the liver; *e*, the gall-bladder; *f*, the stomach; *g*, the convolutions of small intestine; *h*, the transverse colon.

The stomach itself consists of four coats, or membranes, which are held together by means of the cellular tissue that we find everywhere entering into the composition of the parts of the body. The external of these coats consists of what is called serous mem-

brane, and is a part of a great bag of serous membrane, the peritonæum, which covers the whole of the abdominal viscera, the viscera being thrust, as it were, into this bag from the outside, the inner sides of the bag being kept constantly moist, so as to lubricate the external part of the stomach and other organs, and thus prevent any friction from the movements of the body. The part of this membrane which covers the stomach is thin, smooth, transparent, and elastic, and immediately covers the second or muscular coat. This coat is composed of muscular fibres, which are distributed in three different directions. There is a set of fibres passing from the œsophagus directly along the stomach. Under these is another set, which passes round the stomach in a circular manner; and under these are others, passing in an oblique direction between the two others.

These fibres, like all other parts of the muscular system, possess a power of contraction; and, when the food is in the stomach, it is by means of these muscles that the food is moved round and round, and ultimately propelled to the pyloric extremity of the stomach, previous to passing into the duodenum. The direction of the fibres indicates at once the functions they have to perform; under the muscular coat is a quantity of cellular tissue, called the submucous, vascular, or cellular coat. It is upon this coat that the mucous membrane of the stomach rests, and in which the blood-vessels are distributed before they pass to supply the mucous coat. All these membranes are found to a greater or less extent in the whole of the alimentary canal.

The most important of the coats of the stomach is the internal, or mucous. It is constructed in the same way as the whole of the mucous membranes, which everywhere form the interior of the passages leading into or from the internal organs. This membrane consists of two parts; of an under layer, called corium, which rests always on the submucous cellular tissue, and is composed of a layer of fibres and vessels, varying much in thickness in different parts; and of a very thin lamella, called basement-membrane, on which are formed the epithelial cells. These cells vary much in size, shape, and number, according to the part of the mucous membrane on which they are found. The external surface of all mucous membranes is kept moist with a secretion called mucus. In diseases of the mucous membranes, this secretion may be either entirely arrested, or increased to an unnatural extent. In inflammation of these membranes, the secretion in the first stages is often entirely suppressed, and subsequently greatly increased. This is not unfrequently the case in common cold.

ŒSOPHAGUS.

This is the passage by which the food is carried from the mouth to the stomach; it is a carved canal, or tube, extending from the throat, or fauces, to the stomach, and is narrowest at the upper end, where there is the greatest liability of a stoppage by an attempt to swallow any substance too large for the passage.

The œsophagus is composed of two layers of muscular fibres, the external being placed longitudinally, and the internal disposed in circles, by the contraction and expansion of which the food is propelled downward; the passage is lined with a layer of soft mucous membrane, and a moderately thick cuticle, which is a continuation of that of the lips and mouth.

INTESTINE.

That tubular portion of the abdominal contents which extends from the stomach to the anus, and is formed of a peritoneal, muscular, and mucous coat, united by cellular membrane, is thus called. It is divided into small and large intestine; the first of which has three divisions, severally distinguished as the duodenum, jejunum, and ileum. The duodenum begins at the pylorus, or lower part of the stomach; it bends first backward, then downward, and then across the body, being partially covered by the peritonæum, and so runs into the jejunum, so called from its being usually empty. The small intestine opens by the ileo-cæcal valve into the large intestine, which has also three divisions: first, the cæcum, or head of the colon; second, the colon proper; third, the rectum. The colon, which constitutes almost the entire length of the large intestine, is termed, as it ascends from the right lumbar region, the ascending colon, as it crosses the abdomen, the transverse arch of the colon, and as it descends into the left lumbar region, the descending colon. In the iliac region it forms a double curve like the letter S, and that part is thence called the sigmoid flexure of the colon; the fold of the peritonæum which invests it being termed the iliac meso-colon.

The termination of the large intestine is the rectum, or end of the alimentary canal, so called because it is nearly in a right line; here the covering called the peritonæum ceases, and the intestine accommodates itself to the hollow of the pelvis, having its external opening in the anus, the sphincter of which, a strong circular muscle, guards it.

The whole of the intestinal canal is a continuous tube about six

times the length of the body, the first three-quarters of it comprising the small and the last quarter the large intestine; the calibre of the tube of the latter portion is much greater than that of the former; the cæcum, the largest of all, being at least three times greater than the ileum.

THE LIVER.

This is the largest glandular apparatus in the body, and one of its most important offices is to secrete the bile; it is divided into three lobes, viz., the greater, the smaller, and the *lobulus Spigelii*. The first is situated in the right hypochondriac region of the abdomen; the second in the epigastric region; and the third in the left side of the great lobe, having two prolongations, which have been termed the *lobulus caudatus* and the *lobulus quadratus*.

The liver weighs on the average about four pounds. Although to the naked eye it looks like a solid substance, it is yet what is called a compound gland, that is, made up of a number of smaller glands, bound together by cellular or areolar tissue. Each of these little glands, or lobules, as they are called, is about the size of a millet-seed, and is composed of a minute ramification of the hepatic artery and vein—the vessels whose special office it is to afford nutriment to the liver—of a branch of the portal vein by which the blood returns from the intestines through the liver to the heart, and which is forced into the cells of the duct which conveys the bile off from the liver. There is no doubt now that the bile is entirely secreted from the venous blood. From this fact we can well understand how any impediment in the flow of blood from the liver to the heart is likely to cause congestion of the former organ, and how, on the other hand, any obstructions in the liver are likely to act upon the heart, and cause irregularity of operation there; thus, with sluggish liver, we get febrile and often irregular pulsations. As soon as the bile is formed, or secreted in the cells of the liver, as much of it as is required to form chyle passes into the digestive canal, while any over-plus passes into that convenient reservoir the gall-bladder.

Having thus an important duty to perform in the animal economy, it is of the utmost consequence that the liver should be kept free from disturbing agencies, so that it may be in a proper condition for the discharge of its functions. The evil to which it is most liable is a disturbance of its circulation, causing either active or passive congestion, both of which are common conditions of the organ.

GALL-BLADDER.

The receptacle for the bile is situated on the concave side of the liver, and lies upon the colon, part of which it tinges with its own yellow color. It is about the size of a hen's-egg, and the shape of a pear. This bladder must be sought for beneath the right lobe of the liver, at about the boundary-line between the epigastric and right hypochondriac region. The bile secreted by the liver is here collected, retained for a certain time, until rendered more fit for its office by admixture with the peculiar produce of the bladder, and then expelled.

KIDNEYS.

These are the two glandular organs that secrete the urine: they are situated at the lower back part of the abdomen, below the ribs, and above the hip-bones, one at either side of the spine. Each kidney forms a firm, fleshy mass, which is enclosed in a fibrous capsule, the outer and tougher membrane being lined with a soft and smooth mucous membrane, which forms a continuation of that which lines the ureter and the bladder. On section the kidney appears formed of two different substances—the external, or cortical, and internal, or medullary portions. The medullary portion is arranged in cone-like forms, and the cortical has a plain, granular surface when cut. The granulated appearance of the cortical portion of the kidneys is owing to the globular expansions of the roots of the capillary tubes, which form the cone-like structures of the inner part, and present, when viewed through the microscope, a very beautiful arrangement, consisting of bundles, or fasciculi, of hair-like filaments; each bundle together forming what is called a process, and opening into one of the calices of the pelvis, in a nipple-like projection, having several minute orifices. On all these little canals, called *tubuli uriniferi*, tiny blood-vessels ramify and spread down to the rounded bodies, called the corpuscles of Malpighi; here it is that the urine is secreted, or separated from the blood, and from hence it is conveyed by the tubuli into the calices, and then through the pelvis of the kidneys into the ureter, and by these down to the great reservoir, the bladder; from thence, by means of muscular contraction, to be forced out by the proper channel, when a sufficient quantity has accumulated.

BLADDER.

A thin membranous bag, which serves as a receptacle for the urine, secreted by the kidneys, until it is voided through the urethra. This organ is situated in the pelvis, just below the pubic bone; when much distended, it rises above this into the abdomen:

it is composed of four distinct layers, or coats, viz., the external, or serous, muscular, areolar, and mucous, this last being the lining membrane. The bladder is angular in shape, and flattened against the pubis, when empty; when full, a longish oval. The ureters, which extend from each kidney to the back of the bladder, pass through the coats of this organ obliquely, so that when it is distended its distention acts to prevent return of the fluid. In the female, the urethra is short and straight. In the male it is about nine or ten inches long, and considerably curved.

THORAX.

That part of the body which contains the heart, lungs, and the larger of the blood-vessels. It is separated from the abdomen by the diaphragm; up the back of it passes the spine, in front is the sternum or breastbone, and on either side it is bounded and guarded by the ribs. Enclosing, as it does, the great organs of circulation and respiration, and the main arterial and venous channels, this is one of the most important cavities of the body. With regard to its exact position, very erroneous ideas are often entertained, a pain in the pit of the stomach being frequently referred to the chest.

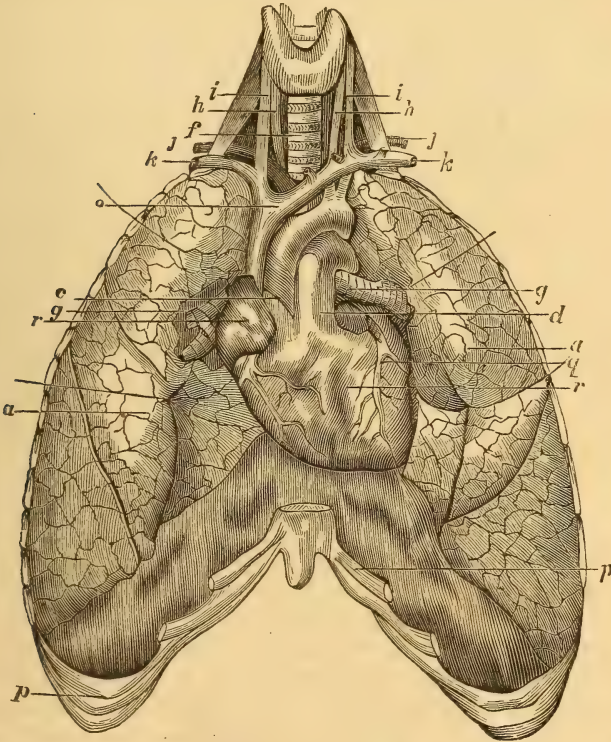
Narrow-chested persons are, it is well known, predisposed to pulmonary complaints, and every possible means should be taken, when young, to expand this part of the frame.

THE HEART.

This is the great central organ of circulation. Its form is that of an irregular cone, having its base directed backward toward the spine, and its point forward and downward toward the left side; so that at each contraction it may be felt striking between the fifth and sixth ribs, about four inches from the median line. In this position it rests upon the diaphragm, having the surface on which it lies much flattened. On its right side, it is firmly attached to the diaphragm, which, it should be remembered, is the muscular partition between the chest and abdomen; and behind, by the vena cava, or trunk vein, which passes through the diaphragm. Behind and above, the heart is also attached, although somewhat loosely, to the upper and back part of the chest, by the vessels which there pass out of the pericardium, or membranous bag in which the heart is enclosed. In a healthy state, the pericardium is lined with what is called the serous membrane, which is smooth and moist, and constitutes its inner coat, or layer, the outer one being fibrous. This membrane is also reflected, so as to give the heart two coverings,

which, at every motion of the organ, glide smoothly over each other, and thus prevent friction.

The heart may be popularly described as a hollow muscle, having four cavities, two on each side; its action is that of a kind of double pump, intended to carry on the twofold circulation, viz., through the body, and through the lungs; the auricle and ventricle, on the left side, being devoted to the former, and those on the right



HEART AND LUNGS.

a, a, lungs with their anterior borders turned aside to show the heart and bronchial tubes; *b*, heart; *c*, aorta; *d*, pulmonary artery; *e*, superior vena cava; *f*, trachea or windpipe; *g, g*, bronchial tubes; *h, h*, carotid arteries; *i, i*, jugular veins; *j, j*, subclavian arteries; *k, k*, subclavian veins; *p, p*, cartilages of the ribs; *q*, anterior cardiac artery; *r*, right auricle.

to the latter. (See "Physiology," Art. CIRCULATION.) Between the cavities on one side, and those on the other, there is no natural communication, but each auricle is connected with its corresponding ventricle, by a valve which only opens by pressure on one side, so that the blood cannot pass except in the right direction; any attempt to return being instantly resisted by the closing of the valves.

Should these become diseased, so that they perform their office imperfectly, there will be regurgitation, or passing back of the blood, and that occasions serious derangement of the balance of circulation. These valves, which are also placed where the blood-vessels enter the different cavities of the heart, consist of membranous folds, and are, according to their form, either sigmoid or semilunar.

It was the opinion of Harvey that the heart was the sole agent by which the circulation was effected, but we now know that there are several other agents that exercise at least auxiliary powers. There is no doubt, however, that the heart has a marked influence upon all parts of the circulation: thus, in the large arteries, we may note that the increase of the current, set in motion, exactly corresponds with the contraction of the ventricles; and this is observed also in the smaller arteries at an interval scarcely appreciable: in the capillaries even, there is an occasional pulsatile motion to be seen in the transparent parts of an animal by means of the microscope. In the veins, also, we find this influence exerted. If the main artery and vein of a limb be exposed and isolated, and an opening made in the latter, the flow of blood may be regulated pretty exactly by compressing the artery, and thus, as it were, cutting off from the vein the supply given to it by the impulse of the heart, whence we may likewise note, that it not only by its contraction propels the blood, but in its expansion it acts as a sucker to draw it up, so that it is at once both a sucking and a forcing pump: and such is the power of its action that the whole mass of the circulation, about twenty-eight pounds, goes through the system in the space of three minutes.

LUNGS.

These are two vesicular organs situated in the thorax, the cavity of which, together with the heart and larger blood-vessels, they nearly fill up; so that, when the walls of this cavity are compressed, the air is forced out of the minute air-cells, of which the lungs are composed, into the several elastic membranes (the bronchi) connected with them; these bronchial passages afterward unite, and form one tube, the trachea, or windpipe, through which the air passes upward and downward in the act of inspiration and expiration, or breathing.

If we examine the structure of the lungs, we find that it is porous, like a sponge. When, by the action of certain muscles, the capacity of the chest is increased, the air rushes in to fill the vacuum, and expansion of the lungs takes place; then, the muscular movement ceasing, the ribs, by their weight and elasticity, contract

and force out the air, and this alternate expansion and contraction constitutes breathing, in the act of which we see the chest rise and fall. The tubes, air-cells, and blood-vessels of the lungs are held together by what is called cellular tissue, and the whole are enveloped in a membrane which covers their surface, and also the under surface of the ribs, for which latter purpose it is reflected back; this membrane is called the pleura.

We know that the action of the lungs may be forced or increased by an exercise of the will; in this case, other muscles than those usually employed are called into play; hence, the stoop in the shoulders, often observed in asthmatic people, and others with whom breathing is difficult. Mental emotion, and increased bodily exertion, will also cause an accelerated action of the lungs, as will those inflammatory and other diseases which stimulate arterial action. From fifteen to twenty-two is the average number of respirations in a minute, under common circumstances; but this number may be, and often is, very greatly increased by excitement, exercise, or disease.

The average weight of the lungs in a healthy condition is about forty ounces; they are, as we have seen, of a conical shape, embracing the heart between them, being internally concave to receive this organ, and externally convex to suit the concavity of the chest. In their narrow part upward they extend a little above the first rib, their broad and concave bases resting upon the diaphragm, and extending farther down behind than before: their color is a pinkish gray mottled with black. They hang free in the chest, except where they are attached to the spine, or rather to the mediastinum, by the pulmonary arteries and veins, and by the bronchial tubes on either side. The areola, or cellular tissue, which connects together the arteries, veins, or cells, etc., is called the parenchyma of the lungs, and constitutes the second distinct tissue, of which they are composed; the first, or outer, being the pleura, and the third, or inner, the mucous lining of the air passages, or cells, into which the air enters when we breathe. So great is the number of these that they have been calculated to amount to 170,000,000, forming a surface thirty times greater than the human body. Every one of these cells is provided with a net-work of blood-vessels, by means of which the blood is brought into immediate contact with the air over every portion of their surface. When this great amount is taken into consideration, we shall at once feel how necessary it is to supply pure air to the lungs with every breath we breathe. Here, then, we have a beautiful and complicated piece of mechanism, in which the purification of the blood is effected, and the power of which for producing

at will a current of air through the lungs makes the utterance of vocal sounds easy.

The lungs of an infant before birth are dark red, and contracted into a small space, within the cavity of the chest. They are firm and specifically heavier than water, in which therefore they sink, whether entire or cut into pieces; they also give out little or no blood, and no air-bubbles arise from them; this, therefore, is considered a good test whether a newly-born infant found dead, under suspicious circumstances, was really born so; if it has ever breathed, the lungs will have become inflated, so as to float on water; they will then be of a pale-red color, and appear of a loose, spongy texture, having expanded, too, so as to fill the cavity of the chest, and cover the heart, as we see them in the diagram of that organ above referred to.

ARTERIES.

These are the vessels which convey the blood from the heart. They were formerly supposed, from their being found empty after death, to contain only air, and hence the name. The arterial system of the human frame is that which performs one of the most important functions on which vitality depends; proceeding directly from the heart, and ramifying in every direction, through all the various tissues of the body, it conveys the blood, after it has received a supply of oxygen from the lungs, and been passed into the great organ with which the arteries are connected, wheresoever it is required for the purposes of life. These arteries are membranous cylindrical tubes, composed of three coats, viz.: the external, which is firm and strong, formed of tissues which take a longitudinal or oblique direction; the middle, or contractile coat, which is thick and laminated, that is, composed of laminae, scales, or plates, arranged in layers; and the internal coat, which is the thinnest of the three, and is easily broken in a transverse direction. From this we learn that the arteries are so constructed as to be capable of considerable extension, and likewise of bearing a great amount of strain and pressure, to which they are occasionally subjected, and which yet results sometimes in a rupture.

The whole of the arteries of what is called the systemic circulation proceed from a single trunk termed the aorta. This main trunk, or channel, proceeds from the left ventricle of the heart, and contains the pure arterial blood, known by its bright-red color, and issuing, when it makes its escape at any accidental opening, in jets, in accordance with the pulsations. From these the smaller arteries are given off as branches, dividing and subdividing to their ultimate ramifications, constituting the great arterial tree.

The arteries do not, as was at one time supposed, run immediately into the veins, but are connected with them by what are called the capillaries, a hair-like net-work of vessels so minute that it requires a microscope to make them out. These are about $\frac{1}{3000}$ of an inch in diameter, and they are distributed through every part of the body so thickly as to render it impossible to pass a small needle into the flesh without wounding several of them; hence, the flow of blood from a prick. It is through this medium that all the phenomena of nutrition and secretion are performed; they are all small alike, and are joined on the one hand with the terminal ramifications of the arteries, and on the other with the minute radicles of the veins, which see.

The capillary vessels have but one coat, which is transparent and fibreless; as they approach the arteries and veins, this coat becomes thicker, and, in accordance with the substance thereof, they are distinguished as fine or coarse; the latter, gradually augmenting in size and complexity of structure, become what are called transitional vessels.

VEINS.

These are the vessels which return the blood to the auricles of the heart, after it has been circulated by the arteries through the various tissues of the body. They are much thinner in substance than the arteries, so that, when emptied of their blood, they are flattened and collapsed.

Veins, like arteries, are composed of three coats: external, middle, and internal. The external coat is the thickest, increasing in degree from the smallest to the largest one, the former gradually diminishing until it is lost altogether, and nothing remains but the one coat in the capillary. In the middle, or contractile coat, which is thinner but finer than the outer, the chief remarkable feature is the presence of longitudinal as well as transverse fibres, the former consisting of closely-reticulated elastic tissue, occurring in layers, and alternating with the circular layers, composed of smooth, muscular fibres, interspersed with areolar tissue, and fine elastic fibres. The internal coat, stronger than that of the arteries, is composed of an epithelium and an elastic membrane, between which is situated a striated nuclear lamella.

These membranes and tissues undergo considerable changes and modifications, in accordance with the size and necessary strength of the veins, which more frequently communicate with each other than do the arteries; these unions are called inosculations, and their object is evidently to obviate the obstructions to which veins are

particularly liable, from the thinness of their coats, and their inability to overcome much impediment by the force of their current.

One very remarkable feature of veins is their numerous valves, which are composed of a thin stratum of nucleated areolar tissue mingled with fine elastic fibres, and coated on the two surfaces with fine elongated cells; the segments, or flaps, of these valves are semilunar in form, and arranged in pairs, one on either side of the vessel generally, but sometimes there is a single flap which has a spiral direction, and occasionally there are three. The free border of the valvular flaps is concave, and directed forward, so that, while the current of blood is permitted to flow freely toward the heart, the valves are distended and the current intercepted, if the stream, from fulness of the veins above, or other causes, should turn back. When we consider that the course of the venous current is upward, and so opposed to the law of gravitation, we see at once the fitness of such an arrangement.

BRAIN.

This is a collective term, signifying those parts of the nervous system, exclusive of the nerves themselves, which are contained within the cranium. The human brain, the average weight of which is three pounds in the male, and four or five ounces less in the female, is divided into three distinct parts, called the cerebrum, cerebellum, and medulla oblongata; these several parts are invested and protected by membranes. Of the membranous coverings which enclose that soft, pulpy, organic mass, two have been called mater (môther), from the old notion that they gave rise to all the other membranes of the body. These are the pia mater and dura mater: the former is a very delicate tissue, covered in every part with minute blood-vessels, which are, in fact, the nutrient arteries of the brain, before entering which they divide and subdivide upon the external surface to an extreme degree of minuteness, so as to prevent the blood entering upon the tender cerebral substance in too forcible a manner. The dura mater is a much stronger and coarser membrane, which lines the inner portion of the skull, and forms an external covering for the brain and its appendages. It gives off several elongations, which are called processes, and which descend between certain portions of the brain: that termed the superior longitudinal process is the most remarkable, on account of its size; it extends from the fore to the back part of the skull, between the lateral halves of the brain, and has been called *falx cerebri* in reference

to its scythe-like form. The nervous mass constituting the brain is symmetrical; that is, its parts are so arranged that, if we suppose the organ to be divided into two lateral halves by a plane passing perpendicularly through the centre, the parts placed on each side of this plane have a perfect correspondence with each other, and form in fact reduplications of each other. The principal parts of the cerebral mass are thus double, but they are all united in the median line, with their halves of the opposite side. This union is effected by medullary bands of various sizes, and fissures, which pass from one to the other, called commissures. There are also ventricles, by which the cerebral parts are separated from each other at certain places; four of them are commonly enumerated; they communicate with each other; the two largest are termed lateral ventricles; they pass into the interior of the cerebellum.

Under the microscope, the cerebral substance is found to be composed of pulp, containing both cells and tubes; the outer portion of it is termed cortical, from *cortex*, bark, because it forms, as it were, the first coat of the mass. Larger in quantity, and firmer in consistence, is the inner substance, termed white or medullary. In man, the brain is much larger than is that of the inferior animals; that of an ox scarcely weighs a pound. It is in the human brain chiefly that those great inequalities of surface exist—those “developments,” on which phrenologists build their theories; they are not found in the hare or rabbit, nor in the Rodentia generally; they are neither so bold, nor so deep, in the ox as in the horse, nor so much so in the horse as in the dog.

BONE.

This is the substance of which the framework of the animal body is composed, to which are attached the softer portions, which it alike protects and supports; it is hard and firm, and therefore well adapted for these purposes, and also for affording leverage for the action of the muscles. Bone is a highly-organized and complex substance; it consists of animal, and earthy, and saline materials, in the proportion of about one-third of the former to two-thirds of the latter; or, to speak more strictly, according to chemical analysis, we may say that, in 100.00 parts, there are 33.30 of cartilage and blood-vessels, 51.04 phosphate of lime, 11.30 carbonate of lime, 2.00 fluuate of lime, 2.36 magnesia and soda.

In the human frame there are 252 bones; they are of various forms and degrees of density or hardness: thus, in the limbs, they are hollow cylinders, combining lightness with strength; in the body and head, they are chiefly flattened and arched, forming cases

for the internal viscera; in the spine and extremities, they are in many pieces, to facilitate the bending of the numerous joints; their connections with each other are accomplished and preserved in many ways. In all bones, whether hollow or solid, the outer portion is harder than the inner; many of them are spongy; most of them have minute irregular cells scattered through their texture; they are covered by a thin fibrous membrane called the periosteum, or, on the head, pericranium; inside the skull, this covering is termed *dura mater* (lateral). At those extremities where a smooth and elastic substance is required for the joints, most bones have a covering of cartilage. Bones are first developed in a gelatinous form, which hardens into cartilage, and then receives the deposit of lime, by which they are rendered firm; sometimes there is a deficiency of the earthy deposit, and thus the bones are bent and yielding, as in rickets. When there is too much lime, the bones are too brittle and easily broken.

The bony frame, or skeleton, is formed by a complete assemblage of conjoined parts, the exact number of which is somewhat variable, some few bones not being always present, and some minor ones, such as those of the ear, being often omitted in reckoning; 252 may be stated as about the number of distinct parts which go to make up this complex structure.

Beautifully are the various parts of the structure fitted and adapted to each other, and to their several uses and motions, acting by means of muscles and ligatures in a manner at once simple and combined, full of the most exquisite contrivances for facilitating the necessary operations of human life, affording such full protection to the internal parts, and combining so evidently lightness with the strength necessary for this purpose.

SPINE.

As the great main channel of nervous sensation, and the principal support to the bony frame, this is one of the most important parts of the human structure; it is sometimes called the vertebral column, being composed of a number of vertebræ, or short single bones, so named from their peculiar construction, the term coming from the Latin *verto*, I turn; these bones turning upon each other in such a manner as to give flexibility to the spine, which is the first developed portion of the skeleton in man, and the centre around which all the other parts are produced. In its earliest formation it is a simple cartilaginous cylinder, surrounding and protecting the primitive trace of the nervous system; but, as it advances in growth and or-

ganization, it becomes divided into distinct pieces, which constitute vertebræ.

These admit of division into true and false: the true vertebræ are twenty-four in number, and are classed according to the three regions of the trunk which they occupy, into cervical, dorsal, and lumbar, the first having seven, the second twelve, and the third five pieces. The false vertebræ consist of nine pieces united into two bones, called the sacrum and the coccyx, the first having five, and the last four pieces.

The vertebral column, as a whole, represents two pyramids, applied base to base, the upper being formed by all the vertebræ from the second cervical to the last lumbar, and the inferior by the sacrum and coccyx.

Viewed from the side, this column presents several curves, the principal of which is situated in the dorsal region, the concavity looking forward; in the cervical and lumbar regions the column is convex in front; in the pelvic an anterior concave curve is formed by the sacrum and coccyx; a slight lateral curve also exists in the dorsal region, having its convexity toward the right side.

Did the bodies of the vertebræ rest immediately upon each other, there would be a rigid column which could not be bent in any direction without displacement of the bones; but, to provide against this, they are separated from each other by very elastic "intervertebral cartilages" which yield to every motion of the body, and prevent that shock to the brain which must occur at every step taken, were not some such provision made. Then, again, the vertebræ thus beautifully fitted into each other, and resting upon soft, yielding cushions, are braced together by a series of ligaments of different kinds, which, while they allow of all necessary motion, yet restrain it from going too far. By means of these and the muscles, which are mostly attached in a longitudinal direction, and chiefly to the posterior portions of the vertebræ, the equilibrium of the spine and the motions of the body generally are effected.

Each vertebra having a triangular opening corresponding in position with the rest, there runs through the whole of the column a canal, which is filled with the nerve substance and membranes, composing what is called the spinal cord, that communicates with the brain through an opening in the base of the skull.

MUSCLES.

These are the fleshy portions of the animal frame; it is by means of the muscular fibres that its various motions are effected; all flesh

being, in fact, muscle devoted to this purpose. The muscles are bundles of fibres of a tubular structure. Muscle is composed of a number of parallel fibres placed side by side, and supported and held together by a delicate web of areolar tissue; so that, if it were possible to remove the muscular substance, we should have remaining a beautiful reticular framework, possessing the exact form and size of the muscle, without its color and solidity. Toward the extremity of the organ the muscular fibre ceases, and the fibrous structure becomes aggregated and modified, so as to constitute those glistening fibres and cords by which the muscle is tied to the surface of bone, and which are called tendons. Almost every muscle of the body is connected with bone, either by tendinous fibres, or by an aggregation of these fibres constituting a tendon; and the union is so firm, that, under extreme violence, the bone itself breaks rather than permit the separation of the tendon from its attachment. In the broad muscles the tendon is spread out so as to form an expansion called aponeurosis.

Muscles present various modifications in the arrangement of their fibres, in relation to their tendinous structure; sometimes they are longitudinal and terminate at each extremity in tendon, the entire muscle being fusiform, or spindle-shaped; in other situations they are disposed like the rays of a fan, converging to a tendinous point, and constituting a radiate muscle. Again they are penniform, converging like the barbs of a feather to one side of a tendon, which runs the whole length of the muscle, or bi-penniform, converging to both sides of the tendon. In other muscles the fibres pass obliquely from the surface of a tendinous expansion spread out on one side to that of another spread out on the opposite side. When composed of penniform or bi-penniform fasciculi, they are termed compound muscles.

Muscle, as before stated, is composed of bundles of fibres enclosed in an investment or sheath of areolar membrane which is continuous with the framework of the muscular fibres, each bundle of which, termed a fasciculus, is composed of a number of smaller bundles, and these of single fibres, which, from their minute size, and independent appearance, have been called ultimate fibres; although microscopic examination informs us that each one of these is itself a fasciculus made up of ultimate fibrils enclosed in an extremely-delicate sheath called the myolemma or sarcolemma.

Of the ultimate muscular fibre there are two sorts in the animal economy, viz., that of voluntary or animal life, called striated muscle, and that of involuntary or organic life, termed smooth muscle: the former is known by its size, its uniformity of calibre, and espe-

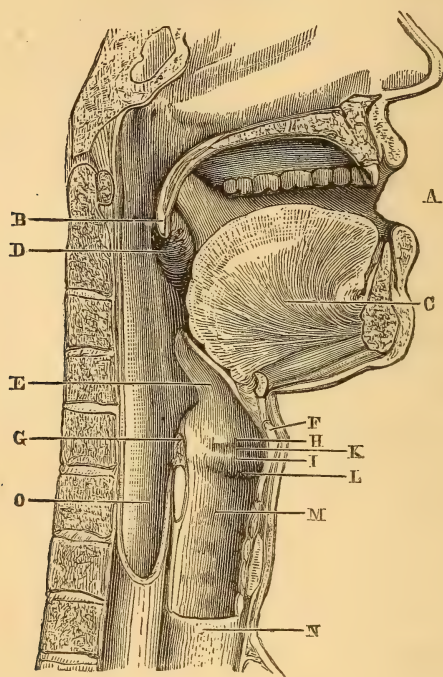
cially by its transverse markings, which occur at minute and regular distances; it also presents markings or striæ in a longitudinal direction, which indicate the existence of fibrillæ within the sheath, or myolemma, which is thin, transparent, and elastic. The chief peculiar property of muscles is their contractibility, by virtue of which they are enabled to exert so great an influence in the mechanical structure of the animal frame; every variety of form and arrangement which they present is found to correspond exactly with the especial purpose which each has to fulfil; and generally, as well as individually, they afford striking indications of the wisdom and skill of their divine contriver and maker. The absolute power exerted by a muscle in contracting is commonly much less than its efficient power, a great part of its force being lost by its being inserted obliquely on the lever which it has to move; or on the distance of the muscle from the centre of motion; or on the resistance which other muscles and the adjacent tissues present, etc. But it is constantly found that, where power is lost, there is a corresponding gain of velocity, extent of motion, compactness of force, or convenience and readiness of action, to compensate for this loss.

PELVIS.

This is the part below the abdomen, containing the bladder and rectum, and in woman also the uterus. This important part of the human frame is an irregular structure of bone supporting the spine, and resting upon the thigh-bones, whose rounded heads fit into the cups, or cavities, of the pelvic bones, at the acetabula. The pelvis consists essentially of three distinct masses of bone; two of these are the os innominata (nameless bones); they form together the sides and front of the pelvic cavity, being united behind by a triangular bone called the os sacrum, which fits like a wedge between the two side-bones of the structure. The side-bones, although in the adult united each in one piece, are in childhood divided into three, and, for convenience of description, anatomists retain these distinctive divisions through life. Here we have a bony structure at once light, compact, and strong, admirably adapted to sustain the weight of the body, and to protect the important organs lodged within its cavity. In the female, this cavity is more broad and ample, and the bones are more extended, to afford sufficient room for the growth of the fœtus, and for its safe delivery. It is manifestly of the highest importance that, in women, the pelvic bones should be fully developed. In some cases, from disease or other cause, it is not so, and the opening through which the child has to pass, and which is never

more than barely large enough for the purpose, is so small as to render its extrication in a living state impossible.

THE THROAT



LONGITUDINAL SECTION, SHOWING THE NASAL CAVITIES, THE MOUTH, THROAT, LARYNX, AND OESOPHAGUS.

A, mouth; B, soft palate; C, tongue; D, tonsils; E, epiglottis; F, thyroid cartilage; G, arytenoid cartilage; H, I, superior and inferior vocal cords; K, ventricle of the larynx; L, larynx; M, N, trachea; O, oesophagus.

Beautiful as is the arrangement of that composite apparatus, the mouth, throat, and nose, but few persons comprehend the relationship of its parts. In the diagram, it is shown how the cavity of the nose opens at one point into the throat, and also how the windpipe, or passage to the lungs, opens into the oesophagus, or passage to the stomach. The epiglottis is the valve that shuts the windpipe, and, when food is passing down the oesophagus, this valve closes down to prevent the food passing into the passage to the lungs. This "swallowing the wrong way" does, however, sometimes occur, and it has caused death. An exact knowledge of the relationship of these parts is necessary in making local applications for diseases of the throat, in extracting foreign bodies from the throat, and in plugging the nasal cavity, to prevent hæmorrhage.

HYGIENE AND DIET.

THE rules to be observed for the preservation of health follow almost necessarily from the facts of physiology.

THE AIR.

In considering respiration, we see that its great object is to bring the blood, in given portions at a time, constantly in contact with the air, that it may be purified and renewed. Respiration, therefore, will fail in its object, if the air we breathe is not pure. No person would, of his own will, dip filthy water from a puddle and drink it when he might as well have that from the clear spring near by. Men, women, and children, are generally scrupulous enough in this respect, because they can see the filth in the water. In the air, however, they cannot see the particles that render it impure; and thus people who are squeamish in regard to cleanliness will constantly take into their lungs indefinite quantities of foul air—likely to do more harm than filthy water in the stomach. People are not killed by foul air at once, unless they are placed in such circumstances that they inhale suddenly very large quantities. Physiologists in the lecture-rooms illustrate this by experiments on two pigeons. They place one under a glass jar containing a certain amount of air, into which they slowly send carbonic acid gas—the gas that most commonly poisons the air of crowded places. Taking it thus slowly, the pigeon stands it very well. He becomes drowsy, dull, stupid; can scarcely keep his feet; staggers, falls, but can be aroused. Another pigeon is now put from the fresh air into the same jar, and in two or three minutes falls dead; and then, after the death of the second pigeon, the first is brought out, and, breathing the fresh air, revives. This little experiment is instructive as to the manner in which foul air acts. The second pigeon was overwhelmed by the sudden reception of the great quantity of foul air

in his lungs, as men are who descend into old wells. The first lived in air equally bad, because he had from the first taken the poison gradually, and in increasing portions, his system acquiring the power to endure it. This is the way in which poison acts upon men who spend several hours in crowded, badly-ventilated shops, theatres, lecture-rooms, sleeping-rooms, or other similar places. Death does not always ensue, but there is nevertheless always a positive injury to the system. Poison is as literally taken into the system in this way as it would be if swallowed in our coffee, and it does harm even if it does not kill.

Oxygen, as found in fresh, pure air, being therefore more necessary to life than any article of food, we ought to be as eager always to supply it to the system; taking care to transact business, to study, and to sleep, in well-ventilated apartments; and to watch the premonitory throbbing in the head that will tell us, nine times in ten, that the air we are breathing is impure. Air that does not overpower may yet give us a fever; and the poison of typhoid fever is probably always taken in by breathing impure air.

Ventilation in sleeping-rooms should be from below as well as above, for the worst of the impurities do not rise, but fall. Heated air, being lighter than cold, will rise and pass out at the upper part of a window; but carbonic-acid gas, being heavier than air, will accumulate near the floor, and remain despite all changes that go on above it.

Air thus becomes stagnant from the failure of a current. Under such circumstances, its composition is quickly changed, from various causes; while, at the same time, it is loaded with dust and deleterious exhalations given out by the human body, even in health, or produced from the decomposition of animal or vegetable substances. Every one who has entered a room, that has been completely shut up for even a few days, whether inhabited or not, must have been struck with the peculiar smell of the air in it, and experienced the disagreeable sensation caused by its admission into the lungs. The walls and furniture are soon covered with a damp mould; every thing within the apartment of a perishable nature falls quickly into decay, and affords materials for the still further vitiation of the atmosphere. Many complain of the unpleasant smell and dampness of their houses, without suspecting for a moment that this is merely the result of defective ventilation.

It is all-important, therefore, that the air from without should be allowed to enter freely into every part of a building, if not in a continued current, at least at frequent intervals, so as fully to expel that previously existing in the several apartments.

In the largest and best-constructed houses, ventilation should be promoted, by leaving the doors and windows open several hours, during the day, in fair weather and when the air is driest, and closing them carefully before nightfall. Even in winter, a proper opportunity should be taken, during the day, to admit freely the external air in every apartment of the house, especially the bedrooms.

In treating the hygiene of respiration there is a point of peculiar nicety that it seems necessary to determine—that, namely, in regard to exposure to the night air. On one hand, the inquirer meets the *quasi* medical dogma that the night air is hurtful; on the other hand he is urged not to sleep in apartments to which the air has not free access. If he is to suffer from sleeping in apartments into which the air does not come, and to suffer also from the air when it comes, what shall he do?

None are more vigorous than they who live in the open air night and day, and no sleep is lighter, quieter, or more refreshing, than that taken with only the stars above us. This is not, that only robust persons sleep in the open air; but sleepers in the open air become robust. This refers to all districts of country where the air is dry and pure, in a normal state. Have but little regard, therefore, to those warnings against the air which represent it as an active poison so soon as the sunshine ceases to permeate it; let it enter freely—always provided your house is not in a low, wet, marshy, malarious district. Doubtless the exaggerated fear of the night air originally came to us through the writings of the Italian physicians. So much and so justly dreaded is the evening dew in Italy, and particularly in the neighborhood of Rome, where the Pontine marshes constitute an immense laboratory for the production of malaria, that the inhabitants shut themselves up in their houses on the decline of day—never going abroad, unless compelled by absolute necessity, after sunset in the evening, nor before sunrise in the morning.

Instances have indeed occurred, of individuals lying down to sleep at night in the *Campagna*, near Rome, and being found dead in the morning. Very few, at least, escape an attack of disease who have the imprudence to fall asleep exposed to the open air in an unhealthy district. Thus, history records many examples of the finest armies being destroyed, and the progress of the conqueror completely arrested, by encamping for a single night, without sufficient shelter, in such a situation. The same precaution to avoid the damp and coolness of the night, experience has taught to every people who reside in situations where intermittent fevers prevail, or in

warm and tropical regions, where the heat of the day is sufficient to develop the dreaded malaria, by which the bilious, yellow, and other malignant fevers are produced.

But this is a fear that does not apply in our healthy cities, or in the cool, clear air of the North generally. It should be noted, however, that the great difference in temperature, between night and day, requires some care, in regard to exposure to sudden chill during the night—a common cause of one kind of diarrhœa.

FOOD

There are but few rules in regard to food that are positive. Each system is apt to have its vagaries, and its own laws, aside from the broad facts laid down elsewhere. There should be a judicious proportion observed between articles containing the several nutritive elements. Starch is in all the grains we eat, and in the potato—albumen in all fish and flesh, and oil in these and vegetables also. Primarily all the nutritive substances are contained in vegetables, and life is sustained by these alone; but, to support the system of an active or laboring-man on a vegetable diet, requires too much labor from the stomach and digestive organs, and generally weakens them. Systems sustained in this way are less capable of endurance in any of the emergencies of life. This plan will answer with many, but not at large for the working-day world. Philosophically we may regard meat as vegetable food, in which two-thirds of the process of digestion is done before it reaches our stomachs. In the flesh of the bullock, or sheep, we may find, packed close and prepared for our use, all the nutriment that is in grass or grain; and thus as the muscles of the ox save the muscles of man in the labor of the field, so his vast stomach saves the stomach of man in the labor of digestion, which is quite as much a part of the great labor of life as the other. Cookery, it has been justly said, in loosening the texture, and softening the fibres of food, “spares the stomach a drudgery that can be more easily performed by a spit or a stew-pan.” And the edible animals do us somewhat similar service. Yet we should be careful not to go to the extreme of using too great a proportion of animal food, with a view to sparing the stomach. Meat is a stimulating diet, and the too free use of it forces the vital processes—induces and keeps up a sort of exalted vitality, that exhausts the system. Temperance in this regard should be especially observed by all those whose occupations are sedentary, or even not laborious. Farmers ploughing, or mowing, carpenters, blacksmiths, or any others, whose muscles are part of

the working machinery of society, can consume this concentrated fuel; but merchants, bankers, clerks, lawyers, will best preserve the right condition of the organs by using meat much more moderately than is common.

Beef and mutton are the best meats in use. They are more readily digested than any others, though there is a common notion that the flesh of the young animals, veal and lamb, because more tender under the teeth, must necessarily be more easily managed by the stomach. This is an error. Raw potato or cheese would seem more tender under the teeth—but the former article is scarcely digestible at all, and the latter is digested very slowly. Veal and lamb are softer because more gelatinous; they are, therefore, also less nutritious and more difficult to digest. Invalids and dyspeptics should never use veal. Pork is a hearty, nutritious meat, difficult of digestion, an excellent diet for a laboring-man; but they who have feeble stomachs should withstand the temptations of appetite, and use it sparingly. It should never in any circumstances be eaten raw, and in saying this we count smoked ham as raw meat. Germans are very fond of raw ham taken with bread for a sandwich, but sooner or latter this indulgence pays a heavy penalty, for the flesh of the hog is the refuge of parasites capable of development in the human system. One of these is the trichina, whose egg is laid in the flesh of the hog. If the flesh be thoroughly cooked before it is eaten, the egg is destroyed, but if it be eaten raw the egg develops a minute worm—and, existing in myriads, these cause a disease that results in death. Another reason against raw pork in any form is, that this meat contains the germ of the tape-worm. This is developed, and thrives in the human intestine, if not destroyed by the heat used in cooking.

Salted meat has a harder, tougher fibre, is less readily acted upon by the stomach, and furnishes a considerably smaller proportion of nutriment than a similar quantity of unsalted meat of the same animal.

Venison is an excellent meat, nutritious, and easy of digestion.

The chicken is the best of the barn-yard fowls, and the turkey next; goose and duck are heavy and oily. They make a palatable change of diet from time to time, but are not good for the regular or constant use of any but those with exceptionably vigorous stomachs.

Nearly all fish with white meat are delicate, digestible, and nutritious. The bass, the cod, the halibut, all the salt-water fish first; next the fresh-water fish. Fish with red meat come after these; eels ought to be excepted from the first class, and rated somewhat as pork

among meats, and goose among fowls. Eels, however, may be so cooked as to extract the greater portion of the strong oil their bodies contain; and, when this is done, the fine fibre and flavor of their flesh fit them for any table. It is said that in former times eels were practically submitted to the action of fire unskinned, and while yet alive, and that this process was very effective in withdrawing the oil through the skin. Fish are less hearty than meat, yet they are sufficiently hearty for even any purpose, as the vigor of the portions of population that live exclusively on them will testify. More readily digested than meat, yet serving satisfactorily the same purpose in the system, this food is a good substitute for continued use where necessary, or for simple variety of diet from day to day.

In regard to shell-fish, there is no article comes to the table in which the idiosyncrasies of systems vary so much and are so much the governing law in regard to use. For those who can eat lobster, crabs, clams, oysters, they are good food; they who cannot eat them will readily enough find it out, and must leave them alone. Lobster has a tough, hard fibre, and in many stomachs is not digested at all, as is sufficiently shown by the diarrhœa that always follows its use. Raw oysters, readily enough acted upon in most stomachs, and, when so, a nutritious article, are absolutely poisonous to others.

Broiling is the most favorable of all the ways in which meat is prepared for use. The immediate application of fire to the surface in this mode, by making a thin, hard crust, prevents the loss of the juices, and yet much less of the substance is rendered dry and tough in this way than in any other; meat properly broiled, therefore, comes to the table sufficiently acted upon by heat, yet retaining all its flavor, its sapidity, and its nutriment. Other modes of cooking, while they give some advantage, involve some disadvantage. This alone meets all requirements.

In frying, the heat is applied by means of fat, and thus the meat is in fact boiled in oil. All meats thus cooked taste alike, that is, they taste of the fat in which they have been boiled and generally burned. The peculiar flavor of the flesh is destroyed, and one of the best incitements to the stomach, the effect of the meat in the mouth as it acts on the organs of taste, is lost. Nothing can enable many stomachs to retain this meat, except the use of a large quantity of vegetable acid in pickles. This neutralizes the fat. But these pickles—the toughened fibre of a hard, green vegetable—are bad for any stomach. And thus one offence leads to another.

Roasting is another excellent mode of preparing meat, but this

is generally confounded with baking. Roasting is cooking before the fire and in the air, the meat being held on a spit or other contrivance that alternately turns one side or the other to the fire. This is analogous to broiling, and possesses nearly the same advantages. Baking is cooking in a confined space, as the oven of a range or stove, the heat not being applied directly to the meat, but to the walls of the enclosure. In this the true chemical changes of cookery that result from the direct application of the fire do not take place; they are modified by the medium through which the heat passes, and the meat is rather dried than cooked by saturation with hot air.

In boiling, the heat is applied by means of water, and much of the virtue of the meat is taken by this, as in making an infusion. If we make beef-tea, we extract all the better part of the meat by hot water, and throw the fibrous remainder away; but, if we boil a leg of mutton, we subject it to nearly the same process, only at the end we throw away the watery extract, and eat the fibrous remnant that adheres to the bone.

Vegetables fall readily into a natural classification of farinaceous substances, herbs, and esculent roots. In the first class are wheat, corn-meal, potatoes, rice, buckwheat, rye, oatmeal, barley, and dried beans and peas; also arrowroot, sago, and tapioca; in the second are all the vegetables that are cooked while green, or in the same state in which they grow, as spinach, cabbage, cauliflower, asparagus, green beans, green corn, green peas, and tomatoes. Properly we ought also to count in this class such green substances as the rhubarb, that is eaten stewed or in pies, celery, lettuce, pumpkin, squash, radish, onion, water-cress, and cucumber. In another class are carrots, parsnips, beets, turnips, and onions. Here, then, we have enumerated thirty different vegetable substances, all in common use as food, an ample range for the stomach and the palate.

Wheat, while more used than any other meal, is also the best. Made into such light, nutritious bread as is found in every house and nearly every baker's shop in the country, and eaten with butter, it makes in itself a satisfactory meal, one that does not pall the taste, and that will sustain life for an indefinite time. Corn-meal, buckwheat, rice, and oat-meal, are only less excellent than this; as corn and oat-meal are never ground so fine, they are irritating sometimes to intestines not quite healthy, but this quality also peculiarly fits them for the use of persons whose bowels are disposed to constipation. Potatoes are not well digested in every stomach, and are in more common use than they deserve to be.

The numerous articles classed under other heads should be taken as much as possible by all, the rule of choice being only to prefer such as are most agreeable to the taste of each person in the proper season. The full use of these, by varying the diet, and giving the digestive organs employment they need, preserves health. This is more eminently true of the green herbs proper, as spinach and asparagus. No dinner, of those who can afford to eat what they choose, should be without tomatoes in the season when they become plentiful in the market; green corn and cucumbers, and even the green beans of which the pods are eaten, are charged with many sins, and many also of which they are not guilty. We have nothing to say in defence of cucumbers. It is not pretended that they ought to be ripe when taken. It is therefore the prime fact of their presence on the table, that they must be green. Green vegetables may be made good food by cookery; but it is another necessity in regard to the cucumber that it must be eaten raw. This green, raw substance, therefore, goes into the stomach in company with half a dozen substances which recognize that it is not safe there, and that the stomach must be fortified against it as against an enemy. Oil, to prevent the too ready absorption by the stomach of the half-poisonous acid juice of the plant; vinegar to neutralize an excess of the oil; and salt, pepper, and perhaps mustard, to hurry and even make possible the digestion of the luxury—cholera morbus may well result from such a compound. But corn and beans, though not actually ripe, are well cooked generally, and if well masticated will do no harm, unless gorged in unreasonable quantity. These substances are usually so acceptable to the palate when first in season, that they cause the eater to forget all discretion, and the quantity taken often renders digestion impossible, and the overtaxed organs are relieved by a diarrhœa that generally comes on in about twelve hours. If the diarrhœa were induced by any specially-irritating character of the articles, it would come on much earlier; but, being due only to the failure to digest these substances, it comes on when they have passed from the stomach to the intestine, and lain there long enough to excite irritation.

CONDIMENTS.

There are persons who will not eat salt, not knowing, perhaps, that they take no article of food but contains this substance. Salt is a necessity, for animal life cannot be rightly sustained without it. In those who do not take salt, the intestinal canal can scarcely be kept free from worms.

Other substances, classed as condiments, are in fact medicines,

and their purpose is mostly to provide against the accidents of dyspepsia. We take vegetable acid in the form of vinegar, as Europeans take sour wine to neutralize in the stomach oily substances; and we take pepper and mustard as stimulants, to excite the sense of taste by their effect in the mouth, and to excite the languid, half-exhausted stomach to pour out gastric juice.

Salt should always be taken; vinegar should be taken to neutralize a dish too rich in fatty matters; but hunger and health have no need of pepper or mustard.

DRINKS.

Water is a necessary part of all aliment, since it is quite as important to keep up the supply for the fluid as for the solid parts of the body. We should remember that water is by weight in excess of all the other constituent parts of the body of any animal. Water taken at meals in moderate quantity, by increasing the fluidity of the contents of the digestive tube, favors absorption; but water taken immoderately at that time distends the stomach, rendering its action less effective, and dilutes the digestive juices. Thus it does harm.

Water must be taken; and it is in a great degree a question of the mind and palate, whether we shall take it pure or sophisticated with alcohol, sugar, and vegetable extracts—as in wine, brandy, beer, coffee, and tea. Taken pure, it answers every requirement in the healthy system; and as a people we perhaps make more common use of clear water than any other people equally civilized. In the many explanations of the peculiar energy and self-reliance of the American people, their qualities have been accounted for by our political institutions; but they are probably quite as much due to this dietetic institution, the general use of clear water, and the consequently better average condition of the brain and nervous system of the whole mass of the people. If we should habitually use beer or light wine as do the English, German, French, and Italian people, we might, like them, acquire a flesh-making habit at the expense of blunting and dulling all that life of relation that depends upon a good state of the nervous system.

“Alcoholic drinks,” whether simply fermented and so taken with fruity juices, or whether distilled from those fermented liquors, have been regarded as a “savings-bank” in the system, because one of their more certain effects is to retard the waste. Assimilation thus goes on at the ordinary rate, waste does not go on so rapidly, and the system gains. But whoever uses alcoholic drinks to fulfil this indication will be the victim of a fallacy. In using such a sav-

ings-bank, he does not lay up good material; he does not store away health and strength against the contingency of the future; but he keeps in the system matters that had better pass out; he stores up that from which nothing but disease can be made. Gout, so comparatively rare in the United States, is a national disease with the English, who live most on the above rule; and gout comes to them logically, for its cause is a loss of proportion between what is taken into the system and what passes out.

Whiskey, brandy, ale, beer, porter, and wine, are all useful in certain states of the system, and are all injurious in their abuse. For a relaxed and feeble condition of the digestive organs, where constant stimulation would break the system down, the system would be the better for having the function of digestion performed under the influence of a stimulus, and the best is a moderate quantity of Bordeaux, or other red wine, taken with the meal. In the absence of this, a very small portion of brandy or whiskey, taken in water, will accomplish the same object. Malt liquors are peculiarly suitable to those conditions in which an immediately sedative effect is more desirable, as the narcotic is often quite as obvious as their stimulant effect. In an irritable state of the system, where irritability is not directly the result of great weakness, they are useful. Perhaps their peculiar advantage is entirely due to that which, with regard to the healthy body, is certainly an evil—their power to suspend the waste of the system. As they possess this quality in a double degree, in virtue both of their narcotic principle and their alcohol, they are the most effective of all liquors in causing that saving to the system which may be an advantage at times, but is not to be desired in general.

In health, the first effect of this “saving” is an oppressive plethora. Persons addicted to malt liquors increase enormously in bulk. They become loaded with fat; their chins get double or triple, the eyes prominent, and the whole face bloated and stupid. Their circulation is clogged, while the pulse feels like a cord, and is full and laborious, but not quick. During sleep, their breathing is stertorous. Every thing indicates an excess of blood; and, when a pound or two is taken away, immense relief is obtained. The blood, in such cases, is more dark and sily than in others. In seven cases out of ten, malt-liquor drunkards die of apoplexy or palsy. If they escape this hazard, swollen liver or dropsy carries them off. The abdomen seldom loses its prominency, but the lower extremities get ultimately emaciated. Profuse bleedings frequently ensue from the nose, and save life, by emptying the blood-vessels of the brain.

Pure water, says Dr. Hosack, is the beverage best calculated to

promote health, to preserve the vigor of the intellect, and to secure long life.

Coffee and tea are food. They owe their peculiar virtue to a body that, as found in coffee, is called *caffeine*, and in tea, *theine*; but, though thus differently designated, the substance is the same in both. This substance, in its chemical composition, bears such a near relation to the material of which our nerves and brain are made, that scientific men have found in this the explanation of those revivifying and restorative powers that the experience of ages has found in these drinks. Coffee and tea, therefore, stimulate and excite the nervous system when it is quiet; or, when it is reduced by fatigue, they strengthen and restore it, by the direct and immediate supply of material that has been lost by its too great activity. But tea is more obviously a sedative, and coffee a stimulant. How can this difference be accounted for, if their activity depends upon the same principle? The difference is probably due to the presence of the other substances that give coffee its peculiar taste and aroma—essential oils: these, probably, communicate the peculiar stimulant quality.

Tea is to be preferred for its greater simplicity—the tannin, that gives it astringency, being the only other substance of noticeable activity. Milk, as commonly used, diminishes the astringency of tea. Coffee, as sold ground at the grocer's, is seldom pure, and the common palate is now so vitiated with the stronger taste of these adulterations, that the decoction of the simple berry is thought to be poor in taste and thence in quality.

Tea, taken four hours after the principal meal, will assist the latter stages of digestion, and afford the stomach a grateful stimulus after its labors. Uneasiness, however (from distention of the stomach), will result from taking it in too great quantity.

Much of the appetite for wine and similar drinks is purely intellectual—the result of our constantly encountering their praises in the whole body of poetry in every tongue.

In the time to come, when scholars shall make the people as familiar with the songs of China as they now are with those of Italy and Greece, we shall have the same incitement toward tea; meanwhile, let tea-fanciers take comfort in such morsels as the following, written by the Chinese emperor, Kien Long, on a hunting excursion:

“Set over a moderate fire a three-footed vessel, whose form and color indicate that it has been long in use; fill it with clear water of melted snow; let this be warmed to the degree at which fish grow white and the crab red; pour this water into a cup upon delicate leaves of a choice kind of tea; let it stand a while, till the first vapors

which form a dense cloud have diminished, and only a slight cloud hovers over the surface. Drink then slowly this delicious beverage, and thou wilt become strong against the five cares which commonly disturb our spirits. The sweet calm which is obtained from a drink thus prepared may be tasted, felt, but not described."

Fashion may fancy that nothing is more prosy than a teapot; but it is ever the fashion to chant drinks that drive away care, and why not those that directly calm the spirit, as well as those that only induce forgetfulness of one perturbation by exciting another?

EXERCISE.

Earn your dinner before you eat it—if not literally, by laboring manually for the money with which it is bought, yet in another sense, by taking enough exercise to excite that keen desire for aliment that will insure its digestion. As much attention should be given to getting an appetite as to getting food; for, without one, the other is only an embarrassment. By all persons, whose duties do not involve active physical labor, exercise should be taken as regularly as food or sleep. Exercise must fulfil two indications: one with regard to the muscular system, one with regard to respiration. The wear of the muscles that sufficiently active exercise induces, is the most direct and proper incitement to the natural repair that keeps the system in a right state; and the same activity, by forcing us to breathe more air, acts on the circulation as well as on the mass of the blood, and thus tends to make the changes of waste and assimilation more effective. Exercise should be taken in the open air, when possible, and that taken on foot is best for those whom it does not exhaust. Exercise on horseback is better than in a carriage, and in a boat, that the seeker of health rows for himself, better than all. But it should never become toilsome. Fatigue, if excessive, certainly is worse than no exercise. Exercise is not good at all times. If taken shortly before meals, it should be moderate. It is better that a meal should be preceded by a period of rest than of exertion. No greater offence is committed against health than that of sitting down to eat worn out in body or mind, either by necessary labor or mistaken recreation. Immediately after meals, rest; and, in ordinary cases, let exertion not be very active for even two or three hours.

For perfect exercise, it is necessary that motion be communicated to every part susceptible of it; that the breast be dilated beyond the usual bounds of rest; that all the muscles attain the utmost degree of their extension and contraction; that strength be exerted, and enjoy all its developments. The effects of such exercise, when not

carried to the extent of producing undue fatigue, are to promote the circulation of the fluids throughout the body, to render the digestion of food more easy and perfect, to insure the nutrition of every part of the system, and to enable perspiration and the other excretions to take place with regularity.

USE OF WATER.

Cold water is a specific for half the ills that flesh is heir to; not as used in the water-cure establishments, but as any person living comfortably may use it for himself. European physicians send nearly all forms of chronic disease to the medicinal springs that are so abundant in Germany and France, and with the best results; and apparently one sort of water cures as well as another, which has lately given rise to the notion that it is not the medicine in the water, but the water itself, that cures. Certainly the free use of water is alone very effective in many cases.

Atticus, the friend of Cicero, while in that uncomfortable state of mind produced by disease of the stomach, became disgusted with life and resolved to destroy himself. He called together his relations and friends, to communicate to them his design, and to consult with them upon the species of death he should choose. Agrippa, his son-in-law, not daring openly to oppose his resolution, persuaded him to destroy himself by famine; advising him, however, to make use of a little water to alleviate the sufferings which would at first result from entire abstinence. Atticus commenced this regimen, while he conversed with his family, philosophized with his intimate friends, and passed many days in thus preparing himself for death. Death, however, did not occur; on the contrary, by restricting himself solely to water as his only nourishment, the pains of the stomach and bowels, by which he had been previously tormented, ceased; and he speedily felt himself improved in health, and more tranquil in mind. Agrippa now attempted to convince him that, as the disease under which he had labored was happily removed, he ought to renounce his design of putting a period to his existence. Atticus confessed, at length, the justness of his son-in-law's argument; he accordingly followed his advice, and lived until a very advanced age.

But it is by bathing that we secure the best effects of water. The bath, whether warm or cold, is the most powerful of all agents that can be used for modifying the condition of the body. By removing from the surface all that would obstruct the pores, all adhesive excretion of perspiration, the bath fulfils its first requirement

in keeping the skin in a state to properly perform its office, and carry out that large proportion of the waste that should go by this channel. Regular bathing, therefore, for this purpose only, is a primary necessity. Without it, with the ordinary habits of life, and the clothing in use, the skin cannot be kept in order. We do not mean that it cannot be kept free from obvious disease, but that it cannot be kept in a state to perform its function. Either, therefore, other emunctories will be oppressed or the function will not be performed, the system suffering, whichever happens. Next to its usefulness by purifying the surface, comes its efficiency in all the changes that result from the modification of temperature. In this way it is a most energetic stimulant to all the vital functions, respiration, circulation, and all the processes of digestion. Nothing is more potent as a remedy against all the forms of dyspepsia, than the regular use of cold water, in the daily bath, whether with the sponge, the shower, or by the plunge into a fresh, or much better, a salt water stream. Through all the more moderate seasons of the year, the cold bath should be used by those who have the necessary vigor to endure its stimulant operation; but those whose systems are too enfeebled for this must use the tepid or warm bath.

By a warm bath we are to understand that in which the temperature ranges from eighty-eight to ninety-eight degrees Fahr. This does not unduly heat or excite the body, but has a most soothing and tranquillizing effect. The pulse, on immersion in it, is rendered slower, and the respiration more equable. If the heat be above ninety-eight, which is the temperature of the living animal body, or, as it is called, blood-heat, the bath becomes a hot one; we may then look for accelerated pulse, flushed cheeks, and after a while a copious perspiration, bedewing the head and face.

The most proper time for using the warm as well as every other kind of bath is, when the stomach is empty, and especially an hour or two before dinner. Many persons are deterred from having recourse to it, at this time, by the fear of their taking cold afterward, in consequence of exposure to the open air. The error here proceeds from confounding the effects of over-heating and fatigue, after violent exercise, with those produced by the warm bath; whereas they are totally dissimilar. In the former case, the skin is cold and weakened by excessive perspiration, and doubly liable to suffer from reduced atmospherical temperature. In the second, or immersion in warm water, the heat of the system is prevented from escaping, and has rather a tendency to accumulate, so that, in fact, the living body is, after coming out from this kind of bath, better prepared to resist cold than before. There is, in fact, no more occasion to dread

catching cold, after having been in a warm bath, than from going into the open air, on a frosty morning, after leaving a warm bed.

SLEEP.

Cerebral and nervous power becomes exhausted; the mind and the muscles of voluntary motion are unable to continue the exercise of their functions; the muscles are no longer able to sustain the body erect; the head falls forward, the limbs relax, the spine is bent, and, unless supported, the man falls to the ground, or he previously assumes the recumbent posture, that in which he is sustained with little or no exertion of the voluntary muscles. The mind meanwhile ceases from its labors, the faculties of judgment, and memory, and association, are one by one gradually suspended, and finally imagination, the last to quit, the first to return to its post, leaves it; and the external senses, first sight (the eyelids have closed), then taste, then smell, then hearing, then touch, severally, and one by one, cease their exercise; and—the man is asleep.

The important fact to be kept in thought in regard to sleep is its periodical character. In health the cerebral and nervous power will give way at a period having a more or less definite relation to the time at which its daily activity began, as well as to the time at which it gave way on the day before. No doubt also the periodicity of the nervous system that controls in sleep has relation to the change from day to-night. It is, therefore, not only necessary that a certain number of hours should be given to sleep without regard to what hours in the twenty-four they may be, but they should be taken from that part of the twenty-four during which the sun is below the horizon; observance of the periodicity of the system is the rule for the hour at which sleep should begin, as well as the time for its continuance.

Excessive sleep weakens and torpifies the body, prostrates its powers, enervates and disorders its functions. Its effect on the mind is no less serious. It stupefies the sensibilities, blunts the feelings, warps the judgment, and impairs the memory.

To secure sleep, the mind must be tranquil, its powers moderately used, but not overworked, and its several faculties kept in proper subjection to one another; the muscles of voluntary motion must be exercised; the stomach kept free from disturbance; the circulating and respiratory organs, the functions of secretion and excretion, all perform their several duties without appreciable inconvenience; and the bedroom should be well ventilated and cool, the bed somewhat hard, the head well elevated, the feet kept warm, the

bedclothes sufficient to maintain the bodily heat without unduly confining it.

Every source of irritation of the intestinal canal which can operate during sleep should be avoided; hence it is injudicious to take tonic or stimulant medicines at bedtime; and, on the same principle, purgative medicines should not be taken in the evening. Many individuals, however, are in the daily habit of taking a purgative pill at bedtime: but such persons always dream—a circumstance which never occurs in sound sleep.

It is extremely difficult to estimate the quantity of sleep best adapted to preserve health; much depends on the constitution of the individual, and as much on the nature of the sleep enjoyed.

From six to eight hours' sleep may be regarded as the best proportion for a healthy adult; and, undoubtedly, as much mischief may arise from too much as from too little sleep. If much sleep be indulged, the brain is brought into a condition unfavorable to its healthy functions, and favorable to apoplexy and coma; on the other hand, too little sleep, by wearing out the powers of the brain and the nervous system from protracted stimulus, may cause the same diseases. The indulgence of the propensity to extend the hours of sleep increases the desire for it.

INDICATIONS AND DISTINCTIONS OF DISEASE.

HEALTH is that condition of the body in which all the functions of life are performed harmoniously, with ease, and with a feeling of well-being. Each organ acts without our consciousness; the bodily energies play their part together; and the union is so complete, that we neither feel nor care to inquire how the machine works. Every deviation from this state denotes, in strict language, if not the actual presence, at least the approach of disease. To observe with accuracy this deviation from health, and to be able to distinguish the particular tendency of the deviation, is the best skill of the physician. By this sort of observation he ascertains from what disease the patient suffers, and this knowledge is the first step toward the use of remedies. Some of the commoner aids in the investigation of the problem, what is the disease actually before us, are pain, the pulse, the countenance, the state of the tongue, expectoration, etc.

PAIN.

Insensibility to pain would be by no means so great a boon as most of us would suppose, much as we might desire it; physically, as well as morally, it is good for us to suffer; for pain is a great teacher of salutary lessons as regards our welfare. We feel it in the head, or the chest, or the abdomen, or one or other of the limbs, and by it we are admonished that there is something wrong in our habits or mode of life; that we have eaten or drunk too much, or of that which is unfit for us; or indulged in excesses of some kind, or overtasked our powers; or, it may be, not exerted or exercised them sufficiently: we have in some way impaired this or that part of our structure; or there is some insidious disease eating into some

part of our system, and sapping our vital powers, the only indication of whose progress is the pain which it occasions.

Sensibility to pain varies greatly in different individuals, and in accordance with the state and condition of the nervous system of the same patient; it is most severe when the nerve itself is the seat of disease or injury, as in *tic douloureux* and other forms of neuralgia. Usually it is sympathetic, the nerves being only affected as the organs of sensation, through which all pain must necessarily be felt. Next to any affection of the nerves themselves, that of the bones and joints probably causes the greatest suffering, probably on account of their unyielding nature; when swollen by disease they press upon the nerves, and so produce this result. Some parts which are most insensible in a state of health are most actively sensitive when they become inflamed: such is the case with some of the internal organs, and also with the bones, joints, and teeth.

Pain in active inflammation, as well as in its hysterical simulations, is always present and prominent: it is pretty sure to be felt in congestion of any part; in all malignant affections it is generally very acute; in most kinds of fever it is complained of in the limbs and back; in indigestion and dyspepsia we have it in the stomach, as we do also in colic and spasms of that part; "a stitch in the side," as pain there is commonly called, may be owing to flatulency, and when it is in the chest, and increased by inspiration, there is reason to suspect an attack of pleurisy, or pneumonia, or a broken rib. Gripping in the bowels may be due to colic, or to the presence of some acrid kind of food, or to inflammation of the peritonæum, or to diarrhœa, dysentery, or cholera; throbbing pains in the temple, darting or shooting pains in the breast, flying pains about the shoulders and elsewhere, dull, heavy pains in the head, and a hundred other pains that could be named, are all characteristic of some particular form of disease; although they do not all indicate the exact parts to which the disease is referable, they may be nervous sensations telling that mischief is going on somewhere, and calling on the sufferer to investigate the matter, and apply remedies.

THE PULSE.

The stroke or beat of an artery is simultaneous, or nearly so, with the contraction which takes place when the heart pours out a wave of blood through the arteries, the character of the pulsation being greatly influenced by the elasticity and muscular properties of these tubes. As the heart is the great central organ of circulation, and sympathizes with all the changes which take place in the

system at large, it follows that the pulse must be an important guide to those whose investigations are directed to the discovery of the ailments which cause functional and other derangements. But the information afforded by the beating of the pulse is only trustworthy when it is carefully considered and weighed in connection with modifying circumstances. One ignorant of these might as well consult an oracle whose response to his questions is couched in unknown and enigmatical words, as the pulse. It follows, then, that a large amount of practical experience in the treatment of disease is necessary to the proper understanding of this indicator of the state of the system; the matter would be very simple if the mere frequency of the beats was an unvarying indication of this; but, in many cases, the frequency is of far less importance than the rhythm, or tone. It may be full, bounding, or jerking; soft, wiry, or compressible; feeble, remittent, or intermittent; and all these in a greater or less degree.

True it is that, as a general rule, where there is a full, bounding pulse, measures of depletion may be safely adopted; where there is a thin and feeble one, these would not be safe. This is about as far as the non-professional inquirer may venture; it is well, however, for all persons who hold responsible situations, as heads of families, clergymen in country parishes, and especially such as are likely to go into partially-settled countries, where medical advice may be difficult of attainment, to make themselves as well acquainted as they can with the language, so to speak, of the pulse. The pulse may always be easily felt by the fore and middle fingers, pressed slightly on the upper and inner side of the wrist, about an inch above the lower joint of the thumb, where the pulsating artery lies, guarded by the strong tendon of the forearm. The beats may there be distinctly counted, and a little practice will render the detection of any irregularity or difference of force easy. With a healthy man in the prime of life, there will be about seventy-two beats in the minute, that is, supposing him to be quiet, and unexcited. Any great bodily exertion, or mental emotion, will render the pulse more rapid. With children, where there is great activity both of body and mind, the arterial action will be accelerated. We give the above as a general average; with some persons the beats rise to ninety in a minute, and even more, and with others they sink to fifty, and these variations are quite compatible with good health. Age has a great influence in the frequency of the pulse. The average will run near the following figures: At birth, 136 per minute; at five-years old, 88; at from ten to fifteen years, 78; at, from

fifteen to twenty-five years, 69; at from twenty-five to thirty years, 71; at from thirty to fifty-six years, 70.

THE TONGUE.

The mucous membrane, as well as the form of the tongue, is liable to considerable changes in appearance, indicative of disordered states of the system. It is on this account that the tongue is so constantly examined by the medical man in diseases of the body. Its form and movements will often indicate the general state of the nervous and muscular systems; while the appearance of the surface is an index to the condition of the mucous membranes throughout the whole body. Dryness, redness, smoothness, and the amount of white secretion on its surface, are all points from which important conclusions can be drawn, both with regard to the nature and treatment of disease.

With regard to the disordered appearances of the tongue, we may note that it is sometimes loaded, as it is termed, the upper surface being covered with a layer of mucous substance, which may be scraped off with a tongue-scraper; this indicates a foul stomach; in severe cases of dyspepsia, this coating often becomes very thick and peels off, leaving the tongue red, moist, and tender; sometimes the coating is dark brown, resembling fibres, which admit of being separated by the fingers; it is then said to be furred, and this is symptomatic of great local irritation arising from inflammation. In feverish conditions of the system, the tongue becomes very dry and hot, parched, as it is called; if clammy and viscid, there is usually derangement of the digestive functions; a yellow tinge on the coating of the tongue indicates biliary disorder; a thin, creamy white, inflammatory disease in the abdomen; in sore throat we often find it of a dingy, whitish color; in scarlatina we have elongated papillæ, presenting bright-red spots, and, in some forms of intestinal irritation and hæmorrhage, it is morbidly clean and red. In anæmic patients we find this organ partaking of the general condition of the system, being pale and flaccid; in paralysis, it is drawn on one side; in delirium tremens, and nervous affections, it is tremulous; and, in low stages of fever, it becomes almost black, and cannot be protruded. Thus, to the instructed eye, the tongue affords a pretty sure indication of the state of the system, and is always consulted by the physician as a reliable authority.

Before, however, such evidence can be properly weighed, an acquaintance with the normal condition of the organ is necessary; some tongues are scarcely ever thickly coated under any circum-

stances, and others are scarcely ever clean, be the bodily health ever so good; some are always dry, others always moist, and in shape and size they differ considerably in different individuals.

THE COUNTENANCE.

Tolerably clear indications of a person's state of health may generally be read in the expression of the countenance; where there is a great anxiety depicted on this dial-plate of the internal organs, there is likely to be functional or organic disease of the heart, pneumonia, bronchitis, laryngitis, croup, consumption, dropsy of the chest, causing a sense of oppression and impeded respiration. In fevers, and other acute forms of disease, which shorten life, there is also this anxious expression, as well as in melancholia, hypochondriasis, and to some extent in low forms of mania.

When the countenance is livid and tinged with blood, there is impeded respiration and circulation, probably congestion of the brain; this is the case in apoplexy, disease of the heart, effusion of the lungs, etc. A pale countenance is a sign of fainting, of anæmia, and hæmorrhage, external or internal. When the expression is violent and excited, there is probably the delirium of fever, inflammation of the brain, mania, or delirium tremens. In paralysis, convulsions, epilepsy, hysteria, and chorea, we have a distorted countenance; and a flushed one is symptomatic of fever in general, and of the early stage of delirium tremens. Sometimes, in the latter stage of an incurable disease, the face becomes what nurses call "struck with death," and to this hopeless, corpse-like expression has been applied the term *facies Hippocratica*, because it has been vividly pictured by Hippocrates himself; here is his picture: "The forehead wrinkled and dry, the eye sunken, the nose pointed, and bordered with a dark or violet circle; the temples sunken, hollow, and retired; the ears sticking up, the lips hanging down, the cheeks sunken, the chin wrinkled and hard, the color of the skin leaden or violet; the hair of the nose and the eyelashes sprinkled with a yellowish-white dust."

THE LIPS.

By the color and general appearance of the lips, we may often judge with tolerably accuracy of the health of the individual; if they be pale, and thin, and shrunken, there is a deficiency of the red globules in the blood, and a want of vigor in the circulation; this we find to be the case in anæmia, and some other forms of disease. When the lips are full, and have more or less purple in their tint,

we know that the blood does not undergo its proper changes, and that there is danger of congestion toward the brain.

THE GUMS.

The appearance of the gums frequently affords valuable information in investigating the nature of diseases: thus, when swollen and spongy, they indicate scurvy; when there is a blue line along the edge, we may safely assume that lead has been absorbed into the system, either by drinking water passed through pipes of that metal, or by handling it in one or more of its forms and combinations, as painters are obliged to do; a pink line indicates pulmonary consumption; and when there is inflammation, with soreness and sponginess, accompanied by a deepening of the color, and a fetid breath, we may generally set it down to mercurial salivation.

EXPECTORATION.

By the nature of the expectoration it is often possible to judge of the character and progress of the malady with which we have to contend: if this be frothy, it indicates active bronchitis, catarrh, or influenza; if stringy, and of a whitish or yellowish color, the bronchitis has become chronic or spasmodic, or there may be whooping-cough present or impending; if purulent, it may indicate the latter stages of catarrh, or influenza, especially if the sputa, or matter spat up, is mixed more or less with a tenacious mucus; genuine pus, capable of being poured from one vessel to another, indicates the bursting of a vomica on the lungs, or of the matter of empyema, having found its way into the bronchial passages; the yellow matter often expectorated in humoral asthma is not truly purulent, but to a large extent mucous. If lumpy, there can be no mistake as to the nature of the disease: pulmonary consumption has fairly set in, and made considerable advances; there is sure to be a softening and breaking up of tubercles, where there are small yellowish or whitish lumps, expectorated along with the clearer fluid on which they float, perfectly distinct. If membranous, the sputa indicates inflammatory action of a chronic, most likely of a croupy character. If stringy and rusty-colored, there is certainly pneumonia; if bloody, there is hæmoptysis; either a blood-vessel on the lungs has broken, or blood has oozed out through the bronchial membrane, both symptoms of a very diseased state of the tissues, and indicative of great danger to the patient. If offensive and putrid, there may be gangrene of the lungs, but this is only a single sign, and not to be relied on alone.

SCREAMING.

It is not uncommon for nervous and hysterical persons to manifest their uneasiness in this way ; and with children it is very usual, and it should not be allowed to pass without inquiry as to the cause ; if it is increased by any particular movement of the body, something connected with the dress may be the incitement, or some internal injury. When it is intermittent, some painful affection of the chest or stomach may be suspected. If it occurs during sleep, it may arise from the irritation of teething, or of worms, or from the presence of indigestible matter in the bowels, or from the impression of fear or terror, made on the mind by some fearful scene, or ghostly story. Incipient disease of the brain may also give rise to fits of screaming. Sometimes with children it is a mere habit which requires checking ; such, too, is the case not unfrequently with weak and foolish women, who encourage the habit.

TABLE OF SYMPTOMS.

The following table includes a sufficient number of the more evident abnormal conditions produced by disease ; used judiciously, it will prove an effective guide. It will be found that there are several diseases set down to each symptom, but this fact will cease to be discouraging, when it is remembered that every disease gives several symptoms, and that, running through several symptoms in this list, there are not many diseases under any one symptom that are found under two or three other symptoms. Make use of the table on this idea. Suppose the patient complains of headache : under that symptom ten possibilities are suggested—which disease is it ? It may be any one of these. Is there any other symptom to help us ? Determine which. Yes, there is drowsiness. Well, then it must be one of the diseases that are named in common under both those heads. This reduces the ten to five ; another symptom will reduce it still more. A distorted countenance will reduce the five to four. It is, then, one of the four diseases under that head. Thus, following symptom by symptom, reason to the knowledge of the disease.

Headache: bilious disorders ; hysteria ; rheumatism ; congestion of brain ; epilepsy ; apoplexy ; paralysis ; fevers, eruptive and other ; catarrh ; influenza ; constipation ; migraine, or simple neuralgia.

Drowsiness and giddiness: congestion of brain ; epilepsy ; paralysis ; bilious disorders ; indigestion ; fevers ; debility.

Delirium, or incoherence: fevers ; inflammation of brain ; delirium tremens.

Sleeplessness: indigestion; delirium tremens; fevers; hypochondriasis; hysteria.

Eyes, bloodshot and watery: catarrh; fevers; inflammation of brain; measles; ophthalmia.

Eyes, intolerant of light: strumous ophthalmia; inflammation of brain; fevers.

Eyes, squinting: congestion of brain; inflammation of brain.

Eyes, smarting: ophthalmia.

Eyes, contracted and dilated pupil: congestion of brain.

Eyes, sallowness: bilious disorders; fever.

Eyes, yellow: jaundice.

Ears, noises in: accumulation of wax in the ears; fever; inflammation of brain; hypochondriasis; nervousness; congestion of brain.

Tongue, furred: disorders of stomach; disorders of liver; indigestion; catarrh; influenza; fevers.

Tongue, black: typhus fever; yellow fever.

Tongue, scarlet: scarlet fever.

Tongue, flabby, and notched at edges: debility.

Tongue, sores on: thrush; small-pox.

Throat, sore: quinsy; relaxed throat; scarlatina.

Throat, swollen externally: mumps; goitre; quinsy.

Hoarseness: croupy cough; croup; catarrh; hysteria.

Countenance, anxious: hypochondriasis; palpitation; angina pectoris; acute inflammations; fevers; dropsy of chest.

Countenance, excited: fevers; delirium; inflammation of brain.

Countenance, distorted: apoplexy; paralysis; epilepsy; hysteria.

Countenance, bloated and purple: apoplexy; inflammation of lungs; diseases of heart; epileptic fits.

Countenance, flushed: fever; delirium tremens; inflammation.

Countenance, pale: faintness; hysterical fit; paralysis; hæmorrhage; angina pectoris; apoplexy in feeble constitution.

Mouth, foaming at: epilepsy.

Mouth, bleeding from: scurvy; purpura.

Breathing, painful or hurried: inflammation of lungs; pleurisy; consumption; asthma; dropsies; whooping-cough; child crowing; croup; fevers.

Cough, and expectoration bloody: inflammation of lungs; consumption.

Cough, frothy etc.: influenza; catarrh; asthma; bronchitis; fevers.

Palpitation of the heart: indigestion; nervousness; hysteria; disease of heart.

Appetite, loss of: fevers; bilious disorder; debility; indigestion.

Appetite, depraved: chlorosis; pregnancy; worms.

Hiccough: indigestion; hysteria; debility.

Nausea and vomiting: fevers; indigestion; hysteria; hernia; colic; inflammation; diarrhœa; cholera; gravel; eruptive fevers.

Stomach, pain in: indigestion; spasms; small-pox; inflammation; colic; diarrhœa.

Flatulence and griping: dyspepsia; costiveness; hysteria; colic; dysentery.

Abdomen, distention of: dropsy; flatulence; constipation.

Abdomen, tenderness on pressure: inflammation of bowels; inflammation of liver; inflammation of kidneys; inflammation of womb; inflammation of bladder; retention of urine.

Bowels, confined: bilious disorders; colic; inflammation of bowels; hypochondriasis; hysteria; chlorosis.

Urine, abundant and pale: hysteria; nervousness.

Urine, abundant and high-colored: diabetes.

Urine, high-colored, with sediment, and scanty: dyspepsia; bilious disorders; jaundice; fevers; inflammations; rheumatism; gout; scarlatina; dropsies; disorders of kidneys; gravel, etc.

Urine, bloody: inflammation of kidneys; scarlatina.

Skin, sweating and cold: angina pectoris; hectic fever; debility; consumption.

Skin, sweating and hot: rheumatism; eruptive fevers.

Skin, chilliness of: fever; catarrh; debility.

Skin, hot and dry: fevers and inflammation.

Pulse, rapid, full, and sharp: inflammations; fevers; rheumatism; gout.

Pulse, rapid and small: debility; typhus; collapse; hysteria; debility; nervousness.

Shivering: catarrh; influenza; fevers; inflammations.

Limbs, pains in: catarrh; influenza; rheumatism; gout; fever.

Limbs, cramps in: diarrhœa; cholera; convulsions; hysteria.

Limbs, loss of power in: debility; typhus; apoplexy; paralysis; lead-poisoning; fainting; catalepsy.

Limbs, swelling of: dropsy; white leg; rheumatism; gout.

Limbs, twitching of: fever; delirium tremens; Saint Vitus's dance; hysteria.

DISEASES OF THE GENERAL SYSTEM.

FEVER IN GENERAL.

FEVER is a word that no one has yet satisfactorily defined, though the disease is one that any person readily recognizes. It is a disease that pervades the whole system, and deranges every function in a greater or less degree, but it has a tendency to localize itself and expend the greater amount of its force upon some one organ. In one fever, the head principally suffers; in another, the chest, while a third may be rendered serious only in its effect upon the abdominal organs. As to the cause of this difference, it is probable that individual peculiarity has much to do with it. An organ rendered feeble by any means is the one that will suffer in the system; but there is something in the conditions that surround the patient at the time, and something in the essential character of the disease. Typhus has been called cerebral fever, from the uniformity with which it assails the brain; and typhoid, because of its difference in this regard, has been called abdominal.

So far as observation and study have yet pursued fever, the first essential fact in its history is a poisoned condition of the blood. Poison floating in the atmosphere is taken in by respiration, passes from the lungs to the blood, and renders the blood unfit for its purposes. Its primary effect is seen in the nervous system, in the chill, languor, and general uneasiness. Reaction follows, with bounding pulse, heat, high color, brilliant eyes—all the phenomena of exaggerated vitality, which, exhausting the system like overlabor, reduces it to extreme debility. In proportion as the first onset was severe, and the nervous system more or less overwhelmed, so the reaction will have greater or less force, and the fever be what is called “sthenic,” or not. Something here also depends upon the peculiar character of the poison. If it is miasmatic poison—the poison that

is formed by the action of the sun upon rotting vegetation, as in marshy or badly-drained districts—the resulting fever will be one of the class called palludal, the most common of which is fever and ague. If the poison be animal—the emanations from the human body, for instance, as they accumulate in crowded tenements or other badly-ventilated places—the fever will be typhus or typhoid.

Fever, it should be observed, occurs in the course of nearly every other disease. It is then only a symptom of the deep disturbance of the system, and will disappear with the disappearance of the disease that brought it, though there are cases in which it becomes the more serious of the two.

In fever, a poison oppresses the nervous system, and this oppression, and the reaction from it, are the phenomena of fever; but the nervous system is oppressed in other circumstances by cold, fatigue, deprivation, etc., and reacts from these also, and this group of derangements is febrile in character, but should not be confounded with essential fever.

Essential fevers are classed as follows: Simple fever, typhus, typhoid, remittent, intermittent.

DISTINCTIONS IN CONTINUED FEVER.

Simple fever is that common disturbance of the system that accompanies a cold, or results from overtaxing the faculties in any way. Typhus is the deep, prostrating fever that overwhelms the system, in which the patient is for days in delirium and unconscious of natural wants. Typhoid (the name meaning “like typhus”) is a less intense type of a disease that may practically be regarded as the same. All these fevers consist, in a general way, of the same derangements, differing mainly in severity. Weariness, lassitude, an indisposition to any activity, mental or physical, is the first indication of illness in all fevers alike. Chill comes next, and this may be well marked, or it may be only a vague shivering, or peculiar sensibility to cold air. Increased heat of the skin, headache, pain in the back, rapid pulse, suffused face, thirst, general excitement, delirium, and debility, come in their course and make up the history of the disease. Such is the common outline of the class of continued fever, but there are special differences between these, and upon such differences the treatment must vary.

TYPHUS AND TYPHOID FEVER.

All fevers are alike at their onset. Nearly the same words would describe the earlier hours of the above-named fevers, of simple

fever, of remittent, of small-pox, or measles. Till such signs appear as indicate the particular form of disease that is present, it will be necessary to adopt the most general remedies, if any, to moderate the force of the onset. In such cases, it will always be safe to give a mild saline aperient, as the citrate of magnesia, and a diaphoretic, as a teaspoonful of Mindererus' spirit, once in two or three hours.

Not only is it quite doubtful, at the commencement, what form fever will assume, but it is not always certain that disease assuming febrile character is fever. Pneumonia, pleurisy, and bronchitis, are all accompanied in their course with fever, and are often admitted into hospitals as fever cases. Bronchitis occurs commonly as part of typhoid and typhus fever, and this makes it the more necessary to discriminate whether a given case is fever with bronchitis or bronchitis with fever. Accurate inquiry will always determine, in the case of bronchitis, that cough was the first trouble.

But to the general symptoms—to the uneasy and peculiar sensation in the stomach, the nausea, and giddiness; languor, lassitude, anxiety about the pit of the stomach, and region of the heart, alternate heats and chills, or a sense of creeping in different parts of the body—there will succeed, if the fever is to be typhus or typhoid, symptoms of a more threatening character about the third or fourth day.

The face will become suffused, will have a dusky, lurid look, and the color may vary from a simple dingy hue, to the shade of new mahogany. The eyes will be suffused also.

The tongue will become brown, and from the third to the seventh day the secretion that kept the mouth moist will dry and blacken on the teeth, tongue, and lips.

By the seventh day twitching will accompany every movement of the hands.

There will appear over the chest, abdomen, arms, and legs, a blotchy eruption, rose-colored in typhoid, deeper in typhus. Each particular point of eruption will be very minute. But the eruption is not a constant sign, and is commonly overlooked altogether.

In ten days, at the latest, sometimes from the commencement, there will be delirium, generally not active but of a low, mumbling, muttering character, and all the senses will be dull, hearing, especially indistinct. Illusions of vision occur, and the patient seems to grasp at things seen. Passages from the bowels and from the bladder may take place involuntarily.

Pulse is one hundred or less, and becomes small and feeble.

Dulness of the senses may pass to a state of entire insensibility.

If the disease is typhoid, there will be diarrhœa, and probably bleeding from the nose, in the first week.

More or less bronchitis will occur in the course of either fever. Abscesses may occur, and erysipelas. Sometimes the pulse is not much affected in the beginning, but, as the disease advances, it usually becomes small, weak, frequent, and often irregular.

Such are the prominent symptoms of an ordinary case. If it proceed toward a fatal termination, the symptoms of debility increase, and become extreme; the patient lies prostrate on the back, with extended arms, and insensibly glides down to the bottom of the bed; there is a continued state of insensibility; a low, muttering delirium; a peculiar yet indescribable expression of anguish in the countenance; twitching of the tendons; picking at the bedclothes; involuntary evacuations, and hiccough.

If the disease appear under the form of the severer or *malignant typhus*, frequently called *putrid fever*, its attack is more sudden and violent, its progress more rapid, and all the symptoms of debility appear earlier, and in an aggravated form. Here the rigors are extremely severe, the heat of the skin often peculiarly acrid and burning, the headache intensely painful, the expression of anguish indescribably acute, the pulse tense, hard, quick, and fluttering. The prostration appears early, and is extreme; the fever sensibly increases every evening; the delirium is high and ferocious; the complexion is brownish, the eyes are heavy, the breath hot and offensive.

The duration may be from three to five weeks; commonly the first improvement becomes apparent toward the end of the third week; there is a moister tongue, a less dusky face, and a slower, fuller pulse. Patients who get better begin to complain that they feel worse, because they begin to be conscious how they feel.

Both fevers are contagious, but typhoid only feebly so; and both are also epidemic. Typhus is often propagated by contagion, and when a patient afflicted with typhus is confined in a damp, close, and stagnant atmosphere, deprived of free ventilation, and exposed to the noxious exhalations of accumulated dirt and filth, he is in a condition to communicate the disease in its worst form, and it is from such a source that the severer or putrid form of typhus commonly arises. Indeed, this fever frequently arises in crowded places, among persons previously healthy, when due attention has not been paid to ventilation; and in this way it often appears in jails, transport-ships, hospitals, and the crowded and filthy habitations of the poor.

PARTICULAR DISTINCTIONS BETWEEN TYPHOID AND TYPHUS FEVERS.

Typhoid comes on more gradually than typhus. The aspect of the typhoid patient, though heavy, is less dusky than that of the typhus patient; its expression is less dull and more anxious. Sometimes, when delirium occurs, the typhoid patient is more active, and is more desirous of getting out of bed.

Diarrhoea is a characteristic symptom of typhoid fever. Often it is an early symptom, but sometimes it occurs at the end of the first or beginning of the second week. It is spontaneous, or continues after purgative medicines. Abdominal pain frequently precedes or accompanies it. The stools are dark and fetid, or yellow-ochreish. The abdomen on pressure is hard, and sometimes very much distended. Whether large or not, its convexity is from side to side, is tub-shaped, from gas in the intestine. Usually there is noticed in the first stage, but oftener in the more advanced stages, a slight gurgling movement, from liquid and gas in the bowels, which movement is audible or palpable on pressure. This symptom is not common in other diseases; it is rare in typhus fever. The character of the evacuations is almost distinctive of the disease; thin, yellowish, ochrey. When, in fever, such stools persist day after day, and several of them every day, you may safely infer that there is ulceration of the bowels, though no pain of the abdomen should be complained of even on pressure. When *hæmorrhage* from the bowels, which is apt to occur in this stage of the fever, takes place, it strengthens this inference. The hæmorrhage often occurs unexpectedly, sometimes in large quantities, rapidly exhausting the patient; or it recurs at intervals in smaller amounts, effectually though more slowly wasting his strength. The bleeding is probably owing, in general, to the division or opening of veins by ulceration. Sometimes the blood enters the bowels, but is not voided. Hæmorrhage from the bowels occurs in continued fever sometimes in connection with other putrid symptoms; petechiæ, purple spots, bruise-like blotches, and extreme vital depression. This hæmorrhage is a symptom of the worst omen. As in scurvy and purpura, it depends on a morbid state of the blood, which, when drawn, loses its natural tendency to coagulate. This particular character of hæmorrhage belongs rather to typhus fever.

Eruption of Typhoid Fever.—This is very different from that of typhus fever. It consists of little circular, bright rose-colored, slightly-elevated spots, with round heads, which fade insensibly into the hue of the neighboring skin. These spots disappear completely under pressure. Each lasts about three days. Others follow. Or

dinarily from six to twenty-one present at one time; occasionally one only; sometimes more than a hundred. These spots begin to disappear generally in the second week, and fresh ones come out every day or two till the third week, when they cease to appear, except in case of relapse, when they may recur. These spots do not remain visible on the dead body. Flea-bites, which might be mistaken for typhoid spots, are round red stains with dark central points. The tongue is oftener moist throughout typhoid than typhus fever, and when dry more frequently red, and as it were glazed. Generally, if brown at all, it is of a yellowish instead of a blackish brown.

TREATMENT.—Make no effort to cure the disease. It is not curable, that is, it cannot be cut short by treatment; but it has a distinct limit, and when it has run its course the patient will get well in the majority of cases. All that treatment can do is, to give each particular case the best chance it has to get well. Because the disease is not one that active treatment can at once break up, it is not to be supposed that treatment is useless. On the contrary, there is hardly a disease in which careful treatment does more to save life. It is the object of treatment to keep the man alive, while the disease runs its course, and to prevent his falling a victim to what we may call the accidents of the disease. Patients in this fever, says a distinguished physician, who spend three nights in restless delirium, almost invariably die. Proper treatment can prevent a patient from passing three such nights, and thus save his life; this is an illustration of its office in these cases.

Combat the poison of the disease by medicines likely to improve the state of the blood; assist as you may the excretion of the poison by the kidneys, skin, and bowels; treat dangerous symptoms as they arise; put the patient in the best hygienic conditions possible in the circumstances; exhaust ingenuity in the administration of liquid food, and at the last, if necessary, keep the vital machinery in operation by stimulants; never give up. Remember that the machinery is not worn out, only oppressed by a poisoned blood; it can be driven by alcohol, and life may be saved by keeping the action up an hour longer.

Give at the commencement some mild aperient medicine, to be sure that the intestines are not loaded—castor-oil, in a dose proportioned to the case, from a drachm to an ounce; or a seidlitz powder, made more active by the addition of a small quantity of epsom salts. Have the surface well washed with sponge and water. For the first period, give in addition to this only a mixture of ammonia, either the liquor of acetate of ammonia, a teaspoonful once in two

hours or the carbonate of ammonia mixed with water, in the proportion of one grain of ammonia to a teaspoonful of water, of which mixture give a teaspoonful once in two hours. Take care that the patient is placed in such situation that the air from without can have free access to the room. This is without regard to season. In the winter have plenty of fire in the room, have blankets in any necessary quantity, but have the fresh air. Let the food be beef-tea; solid food will do harm, because it cannot be digested, and irritates the diseased intestine; mixtures of the various farinaceous substances may be given, arrow-root or farina; broths of vegetable juices, as the juice of the tomato, and fruits in their season, with one or two ounces of wine a day, in persons accustomed to the use of liquor. Ordinary cases thus treated will go through very well with no other medicine than the ammonia mixture.

Severer cases will require more active treatment in many respects; but all should at the commencement be treated as above. In typhoid there will be diarrhœa, and therefore it will not be necessary to give any additional opening medicine; but make no effort to arrest the diarrhœa; it is the result of disease in the intestines, and the retention of the discharged matters, by the irritation it would cause, would make that disease worse. Great febrile heat may be consequent upon the state of the intestines and stomach, and this may, early in the disease, require a small dose of calomel, five grains, to be followed by an aperient. Where there is no diarrhœa, the bowels may require attention, but no cathartic medicine must be given where the weakness is particularly notable.

Where the symptoms of disturbance of the brain are persistent, and come on early; where there is high delirium, excessive restlessness, and especially where the breathing is not regular, the proper interval of respiration being lost, and a deep breath being then taken, as if to make up, there is great danger. In these cases the hair must be cut, as it may in any, since it will eventually fall; and the head cooled by evaporating lotions, or by the affusion of cold water. If the patient does not complain of headache after his delirium comes on, the lotions and the affusion will often ameliorate the head-symptoms; but, if the headache persists, the case is more severe, and lotions will be of little use. But pouring cold water on the head has been found a very effective remedy in these cases. In these cases, if the affusion is inconvenient or ineffective, use the following mixture:

Tartrate of antimony and potassa,	3 grains.
Tincture of opium,	2 drachms.
Mucilage,	1 ounce.
Water,	5 ounces.

Let an adult take a tablespoonful of this every hour, till the head-symptoms are relieved, and then it should be taken four or five times in the twenty-four hours.

In a case in which the abdominal symptoms are severe, if there are delirium and wakefulness, give ten grains of Dover's powder at night.

Distention of the abdomen with gas will often greatly aggravate the discomfort. It may be relieved by the application of hot fomentations. If these are ineffective, a skilful person may pass a rectum-tube, but with the greatest possible care.

Guard against bed-sores in a protracted case, as these can be easier prevented than remedied.

The question of the use of whiskey, brandy, or wine, in fever, is one of the highest importance. Physicians have endeavored to lay down precise rules, drawn from the state of the patient, for the use of these, but without satisfactory results. The effect on the patient is the final test. Try a moderate dose at an advanced period of the disease, when the danger is that the patient's strength will not carry him through. If the restlessness becomes less, if it moderates delirium, if the pulse that was frequent and small becomes fuller and slower, keep on. Give either brandy or whiskey, in half-ounce doses, once in two hours, or once in four hours; only the actual trial can properly regulate the time or dose. Keep on while the amendment is evident. If, on the other hand, the first or second trial of the dose does no good; or if, as sometimes happens, every thing at once looks worse, stop it.

SIMPLE FEVER—ITS SPECIAL FEATURES AND TREATMENT.

Simple, continued fever is very likely to be mistaken for typhoid, or a typhoid fever at its commencement for this; it is only in the short course of the milder disease, and in its ready and spontaneous cure, that people generally can first see the difference. Then they know it is not typhoid. It is this disease that doctors have had dealings with in cases in which they have claimed to have cured typhoid fever.

Simple fever is to be known by the presence of the following symptoms:

1. The heat of the skin is greater than natural.
2. The pulse is unnaturally frequent.
3. There is some thirst.
4. Furred tongue.
5. Loss of appetite.

6. Some change in the stools, in the urine, or in both.
7. Some languor of body and lassitude of mind.

Any of these symptoms may occur in other diseases, but their concurrence, and the absence of any other of note, constitute simple fever. All the symptoms are more marked, as a rule, toward night. Seven days is the ordinary duration of this disease, and it does not endanger life.

TREATMENT.—Keep the patient quiet and in bed, not too heavily covered, and in a room of mild temperature, which can be very freely ventilated at regular intervals; for pure air is essential to speedy recovery. Give at the commencement, if there is any nausea, a mild emetic, say, for an adult, powder of ipecac., twenty grains. If the heat of the skin be great, give a sponge-bath, washing the body of the patient all over, either with pure water or water to which some alcohol has been added. Some light laxative must be given within the first few days, as the bowels are costive, or the stools offensive. In the latter case give

Hydargyrum cum creta	3 grains,
Powdered rhubarb	8 grains,

to be followed, in four or five hours, by half an ounce of castor-oil. Cold water is the best drink; it may be made slightly acid by the addition of a little lemon-juice, or currant-juice, or jelly. Give spiritus Mindereri, a tablespoonful once in four hours.

No food should be given, but light broth, gruel, or beef-tea.

GASTRIC SYMPTOMS (*Status Gastricus*).

There is a form of simple fever that seems to be caused entirely by derangements of the stomach, and which, generally passing off with a fit of vomiting and some consequent prostration, now and then assumes a graver character. Sometimes it results from excesses in eating and drinking, which have been repeated in rapid succession; occasionally it is caused by a single indulgence in some aliment difficult of digestion. Persons who have feeble or dyspeptic digestive organs, particularly if the bowels be constipated, are very liable to this affection if their habits be irregular. This is the form of fever that follows excessive indulgence, or a debauch of any kind. Rigor often ushers in the febrile symptoms; the pulse is sometimes extremely rapid, the skin hot, the tongue is coated with a thick, white fur, and there are frequently nausea and an uneasy feeling in the abdomen, which is more or less tumid. The bowels are always either constipated or there is diarrhœa, and when the latter symptom is

present, even when the stools are feculent, there is very generally reason to suspect, at least at the commencement of the disease, the existence of solid excrementitious matter in the cells of the colon. This affection is sometimes suddenly terminated by a copious perspiration ; but, more generally, not until the bowels have been freely unloaded of their feculent contents ; and there are cases of obstinate constipation in which the febrile symptoms will not completely subside for six or eight days.

In many cases this may be distinguished from typhus at the commencement by ascertaining the antecedent circumstances of the patient, and by the state of his bowels and abdomen.

This is to be treated generally as ordinary simple fever. Trouble will result from the excessive irritability of the stomach, and the greatest difficulty will be found in the choice of some nutriment that will not be thrown up. Broth, made from hard clams of small size, taken without admixture, with nothing in it but salt, will always remain, and will contribute greatly to the cure.

INTERMITTENT FEVER.

Intermittent fever, or fever and ague, is a disease consisting of paroxysms, or periods of fever, between each of which there is a distinct and perfect intermission from febrile symptoms. There are several kinds or species of ague ; but the *quotidian*, which returns every day ; the *tertian*, which returns every other day ; and the *quartan*, occurring on the first and fourth days, are the principal. There is another form of the disease in which there is a paroxysm every day, but at different hours. On one day the fit will come on in the forenoon, and the next day in the afternoon. This is not quotidian, but double tertian. The paroxysms that come in the morning of every other day are one tertian, and those that come in the afternoon of the alternate days are another. In quotidian, the paroxysm comes at the same hour every day. To this there is only the exception, good for all the forms, that the fit may come on an hour earlier or an hour later each successive day ; that which comes an hour earlier, or anticipates, indicates that the fever gains strength ; that which comes later, or postpones, indicates that the disease is losing its hold on the system, and will readily give way to treatment. In the same way, if quotidian agues lengthen their period, and change into tertian, it is a good sign ; but the mutation of a disease of a long interval into a shorter one denotes the increasing severity of the malady. Thus a quartan ague is not dangerous, but, if it be converted into a quotidian, it is then very dangerous.

Quartan agues, though less dangerous, are often very obstinate. Debility predisposes to the disease, but the exciting cause is marsh miasma, or the effluvia from stagnant water, or marshy ground, impregnated with vegetable matter in a state of putrefactive decomposition. Dampness and the night air are particularly favorable to the full operation of marsh miasma. Ague does arise, however, from other causes than marsh effluvia; and it may be produced by sympathy, or irritation in the stomach and intestines. Single paroxysms of ague may indicate some disturbance of the urinary organs, as stone in the bladder. There is also what is called the brass-founder's ague, similar to intermittent in all essential points, which occurs among workmen exposed to the fumes of zinc liquefied by heat.

Every fit of ague consists of three stages—a *cold*, a *hot*, and a *sweating* stage. In the cold stage, the face and limbs become pale, the features are shrunk, and sensibility is greatly impaired, the breathing short and anxious, and a sensation of a severe cold is felt over the whole body, succeeded by shivering and violent shaking. Afterward, the heat of the body returns, and soon becomes dry, burning, and much above the natural standard; the countenance is now flushed and tumid; there is often acute pain of the head, sometimes slight delirium; the pulse is strong, full, and frequent, and the thirst urgent. These symptoms are followed, first, by moisture of the skin, and then by a universal and equable perspiration, which terminates the fit.

In duration, the first stage varies from thirty minutes to three or four hours; the second seldom lasts less than three or more than twelve hours, and the third may continue one or two hours. In the first, or cold stage, there are internal congestions, and this, in certain forms of the fever, is a period of great danger. Sometimes, where the fever is very severe, this cold stage is fatal in the first paroxysm, destroying life by congestion of the brain or lungs. Reaction from this causes the peculiar phenomena of the hot stage, and the profuse sweat results from this great activity on the surface.

In the intermission, the patient may enjoy ordinary health.

TREATMENT.—Quinine is the great remedy. Give it in doses of one or two grains every second hour in the intermission, with a double or treble dose three hours before the time at which the ague should come on. Should the disease prove obstinate, the medicine may be given in larger doses. With the chill due at noon next day, in a very obstinate case give five grains over night, and the next morning at nine give

Sulphate of quinine,	10 grains,
Powder of capsicum,	5 grains,
Opium,	1 grain,

and at noon a cup of strong coffee.

Quinine will act more efficiently if the stomach is first freely emptied by twenty or thirty grains of powder of ipecac.

Generally, it is not necessary to give very large doses of quinine, and such doses are to be avoided when possible, for the disagreeable effects they have on many persons. If ordinary doses do not cure, they will be made effective by combination with other medicines, and effect is to be sought in this way rather than by larger doses. Should the pulse be hard and strong, and inflammatory symptoms be present, as pain in the side, etc., this state must be reduced by a low diet, and perhaps by taking away eight or ten ounces of blood from the arm. Otherwise the disease may yield readily when the quinine has been preceded by a light mercurial course.

Commonly, when the disease resists quinine, it is because there is a complication of disease of the liver, and the treatment must be directed to this before remedies can be effective against the ague. Hence the benefit of combining with the quinine some hepatic stimulant, as taraxacum or blue mass, or the hydrargyrum cum creta. Sometimes, in protracted cases, where there is great debility, and where the patients are so feeble and so saturated with quinine that they can take it no longer, iron will cure the disease. Sulphate of iron may be combined with the sulphate of quinine, and will enable the system to tolerate the latter, or iron may be taken without quinine, and in combination with some other of the medicines having specific power over the fever, as arsenic. In districts where this fever is very prevalent, arsenic is much employed, and with great success; but it is a remedy that ought never to be employed till other and less deleterious medicines have failed. Four drops of the liquor potassæ arsenitis, gradually increased, if necessary, to six or eight drops, twice or thrice a day, will speedily cure the most obstinate agues. This is what is called the "tasteless ague-drop."

Common black pepper will cure the fever alone, and, combined with quinine, both medicines will have greater activity. From two to twelve grains of an alcoholic extract of the pepper may be given.

Those who wish to try a very cheap remedy should use the web of the black spider, which has a popular fame, and has been lauded for its efficiency by scientific men. Ten grains taken two or three times before the paroxysm is the stated dose. The following account of its action is from a distinguished English practitioner:

"The cobweb prevents the recurrence of febrile paroxysms more

abruptly, and more effectually than bark, or arsenic, or any other remedy employed for that purpose with which I am acquainted. The cobweb was rarely given before the subject was prepared by emetics or purgatives; and, given to a subject so prepared, it seldom failed to effect a cure comparatively permanent; relapse or conversion into another form of disease being, upon the whole, a rare occurrence where the disease has been suspended by this remedy. If it was not given until the paroxysm was advanced in progress, the symptoms of irritation, viz., tremors, startings, spasms, and delirium, if such existed as forms of febrile action, were usually reduced in violence, sometimes entirely removed. In this case, sleep, calm and refreshing, usually followed the sudden and perfect removal of pain and irritation. Vomiting, spasms, and twitchings in the bowels, were also usually allayed by it: there was no effect from it where the vomiting or pain was connected with real inflammation, or progress to disorganization. In cases of febrile depression, deficient animation, and indifference to surrounding objects, the exhibition of eight or ten grains of cobweb was often followed by exhilaration: the eye sparkled; the countenance assumed a temporary animation; and, though the course of the disease might not be changed, or the dangers averted, more respite was obtained from a pill of cobweb than what arises from, or belongs to, the action of wine, opium, or any thing else within my knowledge."

From a remedy having such effects, it would be foolish to abstain for the fear of ridicule. It is known that strong impressions made on the mind will prevent a paroxysm of ague, and the secret of this cure may lie in the thought of the loathsomeness of the medicine; but it is certainly not improbable that a product of the spider's body may have an energetic effect on the system, since some spiders secrete a very active poison.

The swelling in the left side that this fever sometimes leaves, called ague-cake, is due to enlargement of the spleen. For the cure of this, depend upon continued use of quinine.

It should be kept in mind that, where quinine fails to cure the fever, this failure is due to the fact that the patient's system is so saturated with malaria that the whole mass of blood is in a more or less depraved state. Quinine is not a specific for the cure of this poisoned blood, but iron is, and the blood must be brought to a better condition by iron before the quinine will have a satisfactory effect.

REMITTENT FEVER.

Remittent fever arises from malaria, as intermittent does, and is in some degree a modification of it; but, because the poison is more

intense or more active, or the system in such a state as to make the poison more effective, through the condition of the stomach, liver, or intestinal canal, the febrile symptoms are without distinct interval. As an intermittent fever grows worse, it assumes the character of remittent—and it generally grows worse, not through increase of the peculiar poison, but through complication depending upon the disorder of some organ. The influence of the state of the viscera in this disease is recognized in its common popular name, bilious fever.

It begins as continued fever does, with chills, or a chilly sensation, occasionally with an actual rigor; with pain along the spine, and in the limbs, headache, depression of spirits, or even confusion of intellect. Febrile reaction follows; there are heat, thirst, increased headache, dry, white, furred tongue, and a frequent, full, and sometimes hard pulse. There is also at this stage an uneasiness at the pit of the stomach, a sense of weight, or pain, with nausea, and perhaps vomiting. The urine is scanty and high-colored, and the evacuations dark and offensive.

This condition continues for from eight to fourteen hours, when the symptoms moderate or “remit,” and there is more or less perspiration. This relieves the patient, but he is never altogether free from his fever, and, after an uncertain interval, there is a recurrence of the febrile symptoms. There are different degrees of severity to this fever, as it varies all the way from intermittent to typhus. In some districts, and in certain seasons, its fatality is very great, but oftener it is without danger.

The object of treatment is, to bring the fever as near as possible to the intermittent type, and then cure it with quinine. Where the remission is obscure, it will become more distinct by removal of the irritating cause in the intestine. Give five grains of hydrargyrum cum creta, and a few hours later a small dose of castor-oil, or ten grains of powdered rhubarb. Sponge the surface with tepid water, have the patient's room quiet, and with plenty of fresh air in it, and let no food be taken but gruel. If the pain at the pit of the stomach persist, and more especially if it go round below the ribs on the left side, apply, after the medicine has acted, from three to six leeches over the seat of the pain. If there be loss of sleep, give ten grains of compound powder of ipecacuanha at bedtime. Encourage perspiration by giving the liquor of acetate of ammonia, a teaspoonful every two hours. Within two or three days this treatment will make the remission distinct, and then give quinine:

Sulphate of quinine,	. . . . .	16 grains.
Water,	. . . . .	2 ounces.
Sulphuric acid enough to make the solution.		

Give three to six teaspoonfuls of this a day. It will complete the cure.

As there is no appetite, it would be hardly necessary to warn against imprudences in diet, if the over-anxiety of friends were not often a cause of trouble on this point. Let no solid food be taken till after the quinine has been in use two or three days, and then only of the lightest kind.

YELLOW FEVER.

There are several degrees of severity in this disease; the symptoms in their general character being those of continued, or of typhoid fever; the special character of yellow fever being given by an alteration in the constitution of the blood, more particularly manifested in disorders of the liver, stomach, and intestines.

Commonly a severe shivering suddenly occurs, attended with headache, pains in the back and limbs, flushed face, bloodshot eyes, hot skin, tongue furred, with red tip and edges, nausea and vomiting, pain in the stomach, restlessness, drowsiness, bowels costive, urine scanty and high-colored.

These symptoms may pass off on the second or third day, leaving only debility; or the patient may be seized with sickness and vomiting of the contents of the stomach, and afterward of a dark-colored fluid, becoming darker until it resembles pitch. The occurrence of black-vomit is generally, but not always, fatal. The countenance becomes depressed; the skin assumes a yellow tint, which spreads over the whole body. The vomiting continues, and occurs more frequently, attended with a peculiar hollow and loud noise. The patient retains his sensibility, is restless, desponding, and gradually sinks.

In another form, the preceding symptoms appear with aggravation. The black vomiting occurs earlier. Violent delirium early occurs. Bleeding takes place from the mouth, eyes, ears, and other outlets of the body. There is little urine passed. The tongue is moist and raw-looking. The yellowness of the skin speedily appears. The attack is so rapid that the patient may be carried off on the second or third day. Perhaps there is no real difference in these forms; only, in this second variety, the illness of the earlier days is less noticeable, and, as the patient keeps about, the characteristic features of the disease seem to be developed without warning.

In another form the disease is equally severe and fatal, but is slower in its progress, each symptom enduring a longer time. The temperature of the surface of the body is less, and sooner falls below

the natural standard. The pulse is more feeble, and sooner sinks. The disease has altogether, in this form, a typhoid character.

In all these modifications, the great danger is from depression of the vital energies, change in the condition of the blood, and the extent and frequency of black-vomit. A high degree of febrile or nervous excitement does not indicate so great danger as does this state of depression. In the majority of cases, distinct stages or periods in the progress of the disease will be observable: first, lasting a few hours, the invasion characterized by shivering, headache, pains in the limbs, etc.; second, lasting from two to three days, the stage of excitement in which all the febrile symptoms become augmented; third, that of depression, or collapse, in which the worst symptoms appear, continuing from a few hours to several days.

The headache in this disease is peculiar, and is rather severe pain immediately above the eyes, the bones ache, and the immediate cause of restlessness is the pain in the joints. The vomit that comes in the first stage of the fever is not the black-vomit. When the early febrile symptoms pass away, the period that follows has been called the stage of calm. Dating from this period, there is positive change in the disease one way or the other; those that are to recover begin to show it then, and those that are to die get worse. In this respite, the face clears up, the pain is no longer felt, and the coat peels from the tongue. This is followed in fatal cases by the collapse, in which the surface becomes cold, and the coffee-colored vomit occurs. This vomit is the result of hæmorrhage in the stomach; the same matter colors the stools. Hæmorrhages may occur in other organs, and there may be blood in the urine.

Yellowness of the skin does not occur in all cases, and comes in any case only in the third stage. It must not be relied upon therefore as a means of recognizing the disease, for, if the disease is only recognized when the yellowness appears, it will be too late for treatment to be of any avail.

Neither does the peculiar vomit occur in all the cases; nor yet in all the fatal cases.

It is a disease of warm climates and warm seasons only. In sufficiently high temperature it is epidemic, but is probably not contagious.

TREATMENT.—Give at first one dose of calomel, ten grains, and keep the bowels free by rhubarb, oil, or, better still, epsom salts, for two or three days of the first stage. This is only to be done if the patient is seen in the first stage. Some have in this stage applied a blister between the shoulders, and down the spine. It may moderate the symptoms.

In the second stage endeavor mainly to keep up free action toward the skin. A foot-bath in the bed will accomplish this, and ammonia may be used with the same purpose. Give barley-water, toast-water, tea, and soda-water, made with carbonate of soda, or use this formula :

Take of Carbonate of soda,	1 scruple.
Common salt,	15 grains.
Chlorate of potash,	7 grains.

Mix, and give this in barley-water, every three or four hours.

This is the best plan to prevent the third stage.

Should, however, the third stage come on with its characteristic symptom of collapse, depend on stimulants. Use champagne and quinine. Give the champagne freely, and the quinine according to the appearance of nervous depression, and without any other limit. Give it in doses of five grains an hour ; but, if this does not mitigate the disease, give ten grains an hour, or twenty.

INFLUENZA OR GRIP.

This is an epidemic fever, with catarrh ; the poison seems especially to affect the air-passages, and the person attacked has a cold.

There are chilliness ; shivering ; headache ; sneezing ; hoarseness ; cough ; pains in the back and limbs ; general depression ; feverishness ; loss of appetite ; nausea ; furred tongue ; disordered bowels ; dry skin ; quick and feeble pulse. Influenza thus presents all the features of a severe cold, but is, in addition, marked by prostration of strength and distinct fever, and has much longer duration. It is generally epidemic over large districts, whereas cold or catarrh is more dependent on individual circumstances.

Influenza is not unfrequently attended with severe inflammation of internal organs.

It generally attacks the delicate ; and there is, also, a liability to the recurrence of the disease, which long remains in the constitution.

TREATMENT.—Give aperients, as castor-oil, senna, a warm foot-bath, and sudorific drinks, barley-water, lemonade, or balm-tea. Treat, in fact, like a common cold, remembering only that the disease will not stand very energetic medicines, as it is one of debility.

Food and regimen, calculated to restore the depressed vigor to the system, independent of medicine, are requisite ; and by, improving the tone of the habit, we take the most effectual means of combating the liability to the recurrence of the disease, which is so

peculiar to those who have once suffered it, and also shorten the period and lessen the severity of the convalescence.

As in all diseases dependent upon atmospheric influence, quinine has peculiar power, and should always be given, in doses of three or four grains a day.

SMALL-POX (*Variola*).

Fully-formed small-pox is easily recognized. We suspect that a person taken with fever has the disease, if small-pox prevail, if the patient is "unprotected," and if he has been exposed to the disease within nine, ten, or fourteen days. Vomiting and pain of the back are common at the onset of small-pox, but not of continued fever. These, when violent, usually usher in a severe form of the disease. Heberden noticed that acute pain *in the loins* was almost always followed by a severe disorder; that pain higher up, between the shoulders, was of better augury; and that absence of pain was always reckoned a good sign. Early delirium, stupor, or convulsions, announce a severe case: this rule is less positive in regard to children.

From the time when the disease is taken, until the fever comes on, there is a period of twelve days, and the eruption appears on the second day of the fever; thus, from exposure to the eruption, there are fourteen days. There is a practical importance in keeping these numbers of days in view. If one fears, from exposure, that he has taken the disease, an immediate vaccination should be resorted to, as the vaccine disease runs its course in fewer days, and will modify, if it does not prevent, the other.

Small-pox is divided into the *discrete* and *confluent* varieties. In the former, the pustules are distinct and of a regularly circumscribed circular form; in the latter, they coalesce, and their common outline becomes irregular. The former is scarcely ever dangerous; the latter always is.

In the discrete form the disorder runs its most natural course; the eruption is at first *pimply*; the pimples begin on their third day to contain a little fluid on their summits. Then, for two days, they increase in breadth only, and in the centre of many there is a depression. On the eighth day of the disease, or the fifth of the eruption, the pustules are perfectly turgid and hemispheroidal. During the time they are thus filling up, the face swells often so much as to close the eyelids and change the features. The skin between the pustules on the face assumes a damask-red color. About the eighth day of the eruption, a dark spot appears on the top of each turgid pustule, and at that spot the cuticle breaks, a portion of the matter oozes out, and the

pustule scabs. At length this crust falls off, leaving either a characteristic purplish-red stain, which very slowly fades, or an indelible depressed scar; the patient is *pitted* or pock-marked. The swelling of the face begins gradually to diminish after the eruption has become thoroughly pustular. This is the course of the eruption on the face, where it is usually thickest in both forms of the disease. The same course is pursued, only two or three days later, on the extremities where it begins later. Some of the pustules, especially on the extremities, never burst, but shrivel up. In this form, the fever generally ceases entirely upon the coming out of the eruption; the headache, the pain of the back, the vomiting, the restlessness, abate and disappear; the pulse and skin become natural. About the seventh or eighth day of the eruption, there is commonly, for a day or two, a recurrence of the fever. Pustules, confluent over the whole body, are less regular in their progress than the discrete. The eruptive fever is usually more violent and tumultuous; the disturbance of the sensorial functions is more common and more decided, the sickness more distressing, the pain in the back and loins more severe. The eruption comes out earlier and more confusedly, the pimples being at first very minute and crowded into patches, and often accompanied by a rash like that of scarlet fever or erysipelas, thus rendering the diagnosis, so far as it depends on the appearance of the skin, for a while uncertain. It is sometimes like that of measles; but the appearance soon of fluid, on the summits of the pimples, dispels the uncertainty. The pimples do not, as they advance into pustules, fill up so completely as in the discrete form; they are flatter, more irregularly depressed, and even of a different color, being first whitish, then brownish, and seldom of the yellow purulent hue of the discrete form. Sometimes they are even bluish, or purple. There is commonly some abatement of the febrile distress on the coming out of the eruption, but it is much less marked than in the discrete.

There is danger from the eighth day until the fourteenth. From the fourteenth day, cases begin to get well.

TREATMENT.—If the case is a mild one, it needs only proper nursing. Give cooling drinks, and apply cooling lotions to the surface, but not to such an extent as to interfere with the development of the pustules. Use a mask of cotton covered with oil, to prevent pustules on the face. Carefully protect patients from the influence of cold, but do not go to the other extreme, and keep the room over-warm. Keeping the patient in a high temperature, and giving warm stimulant drinks, have been proposed as a regular method of treatment, and tired, with disastrous results. It increases greatly the develop-

ment of the pustules; and, as the pustules in many ordinary cases excite a secondary fever, but few systems can endure the increased excitement that results from excessive eruption. Keep the bowels open, by mild laxatives. Great harm will be done by giving medicine actively, at the onset of the disease. It wastes the strength that will be wanted by-and-by. Commonly all the febrile symptoms are easier immediately after the eruption, and this has led to the error of hastening and stimulating this crisis, the danger of which we have referred to. This popular delusion has its hecatomb of victims every year. Nausea, in the early period of the disease, may be a consequence of the severe headache; but, if there is a foul tongue and a bad taste in the mouth with it, it is probably due to a disordered stomach, and will be relieved by twenty grains of ipecac.

Severer cases indicate a more deeply-poisoned state of the blood. In these, the secondary fever, that comes on in consequence of the extensive irritation of the skin by the pustules, is, in fact, the worst form of typhus fever, and must be treated as such, except that it will not do to use medicines tending so much to increase the action of the skin. Give moderately-cooling drinks, move the bowels by injections, rather than by purges, and prevent exhaustive wakefulness by the use of opium, giving a grain at bedtime. Tonics may be necessary in the course of this fever, and the best for the purpose is the tincture of cinchona, in drachm-doses, given twice a day.

Guard particularly the eyes. Pustules, remember, are likely to occur anywhere. They may come in the throat, and make necessary the use of a very active gargle, as strong alum-water, or they may come in the trachea, and start a suffocative, troublesome cough, for which opiates will be the only remedy. They will come also on the globe of the eye, and destroy sight. Guard against this by keeping the eye cool with cloths dipped in cold water.

Barley-water, rice-water, whey, and gruels, are the proper food. There will be but little desire for food, and the danger of oppressing the system by stuffing can only arise through the apprehension of friends. Never permit two or three children ill with the disease to lie in the same bed, or the feeblest one will surely die, while, in a room or bed by itself, it would have an equal chance with the others. Keep the person as clean as the circumstances will permit, by proper change of linen.

The use of sulphite of soda has been proposed in this and some other diseases of the same nature, on the theory that it acts in the blood as an antidote to the poison. It certainly seems to have some effect in moderating the violence of the disease.

Give ten to twenty grains, in water, every fourth hour.

VACCINATION.

Every unvaccinated person is liable to small-pox, and may, therefore, also become the source of infection to others. At the same time, he has only two chances to one of escaping with his life; and, even if he be so fortunate, his countenance is disfigured, and his health probably impaired for life.

The only safe and certain preventive of this fatal and loathsome disease is *vaccination*. This is proved—1. By the fact that, in proportion as vaccination is properly and efficiently performed, so the mortality of small-pox is reduced; 2. By the freedom from infection enjoyed by well-vaccinated persons in contact with small-pox patients.

The first point is further illustrated by statistics, which show the mortality of small-pox to have been 96 per 1,000 in the fifty years preceding the introduction of vaccination, and 35 per 1,000 in the fifty years subsequently. This reduction of mortality has gone on progressively in those countries where the performance of vaccination has been rigidly enforced by the governments. Thus the mortality of small-pox before and after vaccination was—

	Before Vaccination was introduced.	After introduction of Vaccination.
	Per 1,000.	Per 1,000.
Lower Austria,	67	7
Upper Austria,	46	6
Trieste,	142	6
Prussia (Eastern),	111	12
Prussia (Western),	75	10
Saxony,	27	8
Sweden,	71	2

In Sweden the laws regarding vaccination are most stringently carried out, and in that country the mortality from small-pox is lowest.

Make the punctures for vaccination quite superficially. Be sure that the matter comes from a good source; and, if taken from a pustule by the operator, that it was taken between the fifth and ninth days, and was perfectly transparent. The natural and proper progress is as follows: The puncture disappears soon after the insertion of the lancet; but, on the third day, a minute inflamed spot becomes visible. This gradually increases in size, hardens, and produces a small circular tumor, slightly elevated above the level of the skin. About the sixth day, the centre of the tumor shows a discol-

ored point, formed by the secretion of a minute quantity of fluid; the point augments in size, and becomes a manifest vesicle, which continues to fill and to be distended till the tenth day; at which time it displays in perfection its peculiar features. Its shape is circular, sometimes a little oval; but the margin is always well turned, and never rough or jagged; the centre dips instead of pointing, and is less elevated than the circumference. A beautiful circular and circumscribed areola almost always surrounds the pustule; and this areolar efflorescence is usually in its perfect state about the seventh or eighth day. In spurious affections of this kind, an irregular superficial inflammation occurs on the first or second day after the appearance of the pustule; and the pustule itself appears more like a common festering sore produced by a thorn, than a pustule excited by the vaccine virus.

Ideas of beauty are comparative. To Jenner's eyes the vaccine eruption altogether resembled "a split pearl laid on a rose-leaf."

According to Dr. Willan, the vaccine vesicle is to be regarded as imperfect when—1. Though perfect in its form and appearances, it is without an areola on the ninth or tenth day; 2. When the vesicle is very small, pearl-colored, flattened, with a hard, inflamed, and slightly-elevated base, a dark-red areola, and without a rounded or prominent margin; 3. When the vesicle is small, pointed, with a very extensive pale-red areola. The spurious disease may be produced—1. By the genuine vaccine virus acting on a system affected with some cutaneous disease; 2. By vaccinating with matter which has undergone more or less decomposition by long keeping; 3. By vaccinating with matter taken from a spurious pustule; and 4. By the genuine vaccine matter being controlled, or in some way diverted from its regular operation by idiosyncrasy, or a depraved condition of the system.

It is rare that any medical treatment is necessary. Any excess of inflammation should be repressed by the application of cloths dipped in cold water, or in the following lotion:

Liquor ammonia,	2 drachms.
Alcohol,	1 ounce.
Water,	5 ounces.

If there should be severe constitutional disturbance, give an aperient, magnesia and rhubarb, and small doses of diaphoretic, ten or twenty drops an hour, of the liquor of acetate of ammonia.

SCARLET FEVER.

After the existence of febrile symptoms and general indisposition, with more or less sore throat for a period varying from one or two

to four days, the skin becomes hot, and an eruption appears, consisting of minute scarlet points collected in patches, or forming a diffused color, like that of a boiled lobster, over the greater part of the body. This rash lasts about five to seven days, and then disappears, leaving the skin harsh and dry, or scurfy, or peeling off in thin scales. The peeling of the skin is sometimes deferred for several days after the disappearance of rash and fever. While the rash is out, it causes itching or tingling of the skin. The tongue presents a characteristic appearance: it is white or furred, but with this are seen the minute papillæ of the surface prominent, and of a scarlet color, giving the likeness of a raspberry. Or the fur may be wanting, and the tongue be entirely scarlet, but presenting the same enlarged papillæ. The throat likewise is reddened, the tonsils enlarged, scarlet, and ulcerated; swallowing is painful.

While the eruption is out, if the disease be of an active or severe character, the countenance is expressive of anxiety; the eyes are brilliant; there may be delirium: the patient is restless and sleepless; there is great thirst; nausea or vomiting; rapid pulse; quickened breathing; costive bowels; scanty, high-colored urine.

The rash appears first on the face, then spreads to the neck, chest, and trunk, and passes off by the extremities. When the throat is much affected, and the disease is severe, there is often some delirium, and the strength fails. This is especially the case when the fever is of a low or typhoid kind; when the throat is much swollen or ulcerated and the eruption appears in irregular blotches, or becomes livid; when the tongue is dry, brown or black, or smooth and glossy; the nostrils discharging an acrid matter which excoriates the upper lip, and bleedings taking place from the mouth, lungs, and bowels.

In many cases, the sore throat, by the putrid and malignant character it assumes, becomes the principal disease. Cases occur in which the characteristic rash is absent, when congestion of the brain will probably divert attention from the other features of the disease.

TREATMENT.—The practical point is to endeavor to assist the constitution in throwing off the poison which gives rise to the disease, or to support the system while that is effected. This may be done, in the milder cases, by doses of carbonate of ammonia every four hours, and by frequently sponging the surface of the body with tepid vinegar-and-water; at the same time an aperient should be given if the bowels be costive. The room should be freely ventilated, taking precaution that the temperature of the surface of the patient's body be not suddenly lowered, as the eruption would thereby be checked. The thermometer should stand at about sixty degrees

in the chamber. The diet should be light. Acidulated beverages and simple fluids may be freely allowed. As the fever declines, mild tonics, as citrate of iron, or quinine, may be given. Beef-tea, wine, etc., carefully allowed. A gargle will relieve the sore throat, or it may have a solution of nitrate of silver (15 grs. to the oz. of water) applied to it with a sponge tied to a slip of whalebone.

In the more severe and active inflammatory form, in which the throat is ulcerated, it may be touched with a stronger solution of nitrate of silver (1 drachm to the ounce of water) two or three times a day. A poultice of bran or bread-crumbs should be applied. Tincture of iodine may afterward be freely painted on the outside of the throat two or three times a day. When the throat sloughs and the febrile symptoms are less active, or have declined, a more liberal diet should be allowed. Strong beef-tea, etc., and wine, and tonics, such as mineral acids, should be given.

In the malignant or worse forms, bark and ammonia with wine or brandy every two, three, or four hours, according to the degree of depression or debility, must be given at the commencement. The skin should be sponged with warm vinegar. If the eruption do not appear freely, or be of a dark or dull color, the patient should be placed in a hot bath in which mustard has been diffused. The principle to be borne in mind in such severe cases is, to support the constitutional powers, and thereby enable the system to throw off the poison by the skin, kidneys, etc.

The bowels should be kept open with small doses of castor-oil; indeed, this attention to the bowels, and small doses of acetic acid, constitute the best treatment for ordinary cases.

Acetic acid,	. . . . .	1 ounce.
Water,	. . . . .	3 ounces.
Syrup,	. . . . .	$\frac{1}{2}$ ounce.

Mix, and give a tablespoonful, once in three hours, to a child six years old.

When the disease is mild, little more is required than to remember that it has a definite limit, and watch the periods of the disease, keeping the patient in bed, on a spare, fluid diet.

In convalescence from scarlet fever, take the utmost care to prevent a too early exposure to cold, as it will produce Bright's disease of the kidney. Children that have gone safely through the disease proper are often victims to want of care in this respect. In the disease itself there is a natural tendency to the affection of the kidney, which imprudent exposure increases. The kidney affection is more likely to occur where the eruption has not come out freely.

MEASLES.

As in the other eruptive fevers, the days that immediately succeed exposure to the disease are without any indication that it has been taken. The first sign of the invasion of the disease is a chill. Sometimes there is one distinct chill, oftener there are several slighter ones. Then come all the symptoms of an intense catarrh with active fever. There are a rapid pulse, general uneasiness, headache, pain in the limbs, nausea, vomiting, agitated sleep. The only early peculiarity is the intensity of the catarrhal symptoms. The eyes are brilliant or suffused, and constantly bathed in tears, and the nose is, as the phrase goes, "stopped up," but discharges freely an acrid, thin mucus. There are paroxysms of sneezing, which are sometimes very violent, and there is a fatiguing cough, and occasionally symptoms closely resembling spasmodic croup. These symptoms generally continue three days, but may continue longer, and the case may through this whole period be mistaken for a severe cold, if there is not at the time an epidemic of measles.

Sometimes there is diarrhoea, and often vomiting, which ceases when the eruption comes out. The eruption appears, as a rule, on the fourth day; seldom earlier, often later; sometimes as late as the eighth or tenth day from the beginning of the catarrh. It is a rash of, at first, very small pimples, which, as they increase, run together into blotches of a shape somewhat like a horseshoe, with skin of natural color between these blotches. It is two or three days in coming out, beginning on the face, neck, and arms, then reaching the body, and then the lower extremities; in this course it resembles small-pox. It fades, becoming browner, in the same order, having stood out three days at least on the face; so its whole duration is six or seven days. It is slightly elevated, especially on the face, which is somewhat bloated and swollen. The cuticle does not peel off in large flakes, as it often does in scarlet fever, but a great part crumbles away. Occasionally, a few small, short-lived vesicles intermix with the rash. The fever of measles, unlike that of small-pox, does not cease, nor abate, upon the emergence of the eruption, but sometimes becomes worse, and there may be convulsions. Measles, unlike small-pox, are not more severe, nor more dangerous, because the eruption is plentiful or early; indeed, the contrary is sometimes the case.

Sometimes the measly rash may occur without the characteristic symptoms of fever and cold, when it is called measles without catarrh. This form of disease affords no protection to the system

against the regular measles. Another form is occasionally seen, called putrid measles.

The eruption appears unusually early, so early as the second day; besides cough and dyspnœa, there will be extreme debility and painful diarrhœa; gangrene often occurs both internally and externally. In this form, the rash is often irregularly and imperfectly developed and livid, and the sufferers seem to die of the intestinal disease that causes the diarrhœa.

In ordinary measles, where it is fatal, death is commonly caused by inflammation in the chest, bronchitis, or pneumonia. In children predisposed to consumption, measles may light up that disease.

TREATMENT.—Slight cases require little more than judicious domestic attention. Cold air to the surface must be especially guarded against, on account of the chest-symptoms. Therefore, keep the patient in bed, with the clothes and warmth of the apartment to which he is used in health; feed him on gruel. If the bowels are not open, give gentle laxatives, as rhubarb or seidlitz powders. Some diaphoretic may be ordered:

Camphor julep,	1 ounce.
Liquor of acetate of ammonia,	3 drachms.
Sweet spirits of nitre,	$\frac{1}{2}$ drachm.

Half of this mixture is a dose, and have the mixture made twice in the day.

Watch very closely the pulmonary symptoms. These at first almost always depend on bronchitis, which is apt to run into pneumonia. Extensive bronchitis is what we have for the most part to dread. Treat as in bronchitis and pneumonia. Give tartar-emetic. When the rash is about to decline, a spontaneous diarrhœa often sets in, and appears to abate the febrile symptoms. If it fail to occur, give gentle aperients. If the eruption disappear prematurely (a bad sign), it may sometimes be restored by a warm bath. Counteract any low state of the patient, especially putrid symptoms, by wine and animal broths—cautiously watch their effects. *After* recovery, the patient should wear warm clothing, should not go out too early, or expose himself to cold; otherwise inflammation of the lungs, and dysenteric purging, will often result.

CHICKEN-POX (*Varicella*).

There is an eruption of small pimples on the back, chest, shoulders, neck, and face. These pimples on the second day become vesicles, i. e., each consists of a minute bladder, containing a faintly-yellowish, clear fluid. On the third day, or it may be the fourth, the fluid has become opaque, and the vesicles are then considered

mature or at their height. After this a thin crust or scab forms, and falls off by the fifth or sixth day, without leaving any mark. There is no fever in the greater number of cases. Sometimes the pimples are very numerous, longer in their course, attended with some feverishness; and, when they have died away, leave a few scars behind.

Distinguished from small-pox by the rapidity of its course, the vesicles drying in three or four days, the globular form of its vesicles, and the absence of fever. The vesicles of small-pox have a depression on the middle of their surface, and they take eight days to reach their height and several days more before they dry into scabs. It is difficult, however, in some cases to distinguish between severe chicken-pox and mild small-pox as modified by vaccination. But note in the present disease the absence of a firm base to the vesicles. The vesicles of small-pox, whether modified by vaccination or not, have generally a ring of inflammatory redness around their base; this is absent from the vesicles of chicken-pox, which have some resemblance to a globule of water dropped on the surface. Small-pox appears more thickly on the face than chicken-pox does.

TREATMENT.—This disease is entirely free from danger. It requires no further treatment than a light diet, and sometimes a mild aperient.

ERYSIPELAS.

SYMPTOMS.—Redness, heat, and swelling of the skin of any part of the body, spreading superficially, attended with feverish constitutional disturbance, thirst, loss of appetite, rapid and feeble pulse. The swelling is slight, the color shining red, disappearing on slight pressure, leaving for a few seconds a white spot or impression of the finger. This inflammation of the skin is attended with heat, pricking, or burning, and a sense of weight and tension, and has a distinct sharp outline, the redness at the edge being as decided as that in the middle. It does not shade away; this will enable any one to distinguish between erysipelas and other diseases of the skin bearing some resemblance to it.

After an uncertain time blisters frequently form, containing a clear yellow fluid. The inflammation is prone to spread to adjoining parts as it declines in its preceding seat. When it is situated on the head and face it is attended with danger, as it is then apt to give rise to inflammatory disorder of the brain.

It is a disease of debility. Certain conditions of the atmosphere, and the impure air of crowded hospitals, strongly predispose to it, as do also habits of intemperance, or any other causes that depress the

vital energies, under which circumstances the slightest wound or scratch will occasion the recurrence of the disease. Exposure to cold will excite it, without the aid of any wound or external injury. Indiscretion in diet, or partaking of unwholesome food, will excite it, where the predisposition is strong.

Erysipelas may become an infectious disease in places where pure air, ventilation, and cleanliness, are not strictly observed. It also occasionally prevails in an epidemic form.

There are two extremes to this disease, tending toward one or the other of which, it requires a different treatment. In one case, it is all fever, and the erysipelatous state of skin bears the same relation to the fever that sore throat may in scarlatina, or the abdominal disturbance in typhoid; in this case, treat it as fever, dusting flour only on the eruption. In the other case, it is an inflammation of the skin, dependent upon debility; and here, therefore, it must still be treated as a disease likely at any moment to run into fever. Graves treated the disease successfully with tonics, stimulants, and narcotics. Trousseau regards the muriated tincture of iron, in doses of fifteen or twenty drops, seven times a day, as nearly specific; and Velpeau applied to the surface a lotion made as follows:

Sulphate of iron,	1 ounce.
Water,	1 pint.

Apply compresses, soaked in this, on the seat of the disease. It is exceedingly effective; under its use, the swelling decreases, and the pain and heat disappear.

The bowels and liver are always in a very bad state, and no amendment can be counted upon till these are put right. Five grains of hydrargyrum cum creta should be given for two or three successive days, and the bowels kept clear by saline aperients, as the citrate of magnesia, or Congress-water.

In cases in which there are irritability and restlessness, use the sulphate of morphine, to soothe during the day, and get sleep at night. Give, at night, half an ounce of the solution, that contains one grain to the ounce, and during the day give from thirty to sixty drops of the same, once in two or three hours.

Attempts have been made, with some success, to control this disease by applications that exclude the air. The simplest of these is common white paint. Paint the whole inflamed surface, and let the pigment extend a little beyond the line of redness. Collodion may be applied in the same way, or the following mixture:

Collodion,	4 ounces.
Castor-oil,	$\frac{1}{2}$ ounce.

Or collodion may be mixed in equal parts with the ethereal tincture of chloride of iron.

There may be many subcutaneous abscesses, after erysipelas, and also abscesses in internal organs. Subcutaneous abscesses should be opened as soon as discovered, and during the time they are discharging the patient will need to be well supported with iron, sulphate of quinine, beef-tea, and probably wine.

HECTIC FEVER.

SYMPTOMS.—Emaciation; increased frequency of the pulse; quickness of breathing; heat of skin; thirst; occasional flush on the cheek; slight shiverings, followed by profuse perspiration; bowels irregular; urine high-colored, and depositing a brickdust-looking sediment. The symptoms are aggravated toward evening. The flush on the cheek becomes more constant as the disease advances; the tongue becomes dry and red, and thrush appears upon its surface; the bowels become relaxed; wasting sweats take place at night, or on falling asleep during the daytime; the ankles and feet swell; and, if the progress of the disease be not checked, the patient sinks from sheer debility.

Generally, this is secondary to some evident or concealed chronic disease—such as slow inflammation, ulceration, abscess, etc., of internal organs, involving perhaps the contamination of the blood by absorption from the diseased organs; disease of bones; extensive or frequent loss of blood; mental impressions; disappointed affection; harass and over-fatigue of body or mind.

TREATMENT.—Our means must be directed to the removal of any evident cause. If, however, the cause be some obscure or concealed malady, we should follow the principle of supporting the powers of the system by tonic medicines and a nutritious diet, with exercise in the fresh air, bathing, etc. Profuse perspiration may be checked by any of the following preparations:

Sulphate of zinc,	3 grains.
Diluted sulphuric acid,	$\frac{1}{2}$ drachm.
Syrup of lemon,	$\frac{1}{2}$ ounce.
Water,	$2\frac{1}{2}$ ounces.

Take a tablespoonful twice a day.

Muriated tincture of iron,	1 drachm.
Water,	$3\frac{1}{2}$ ounces.

Take a tablespoonful two or three times a day.

Strong decoctions of sage-leaves (sage-tea) will often check this discharge effectively.

SCURVY (*Scorbutus*).

SYMPTOMS.—These are general debility, lassitude, lowness of spirits; the gums become swollen, spongy, or purple, and bleed on slight friction. The odor of the breath is offensive. The patient suffers from pains in the limbs, stiffness of the joints, and is averse to any exertion. The skin is dry and harsh, shining, and discolored with streaks of blue, greenish-black, or livid hues, resembling those of bruises. These patches are first observed, and are most numerous, on the thighs and legs; they soon appear on the arms, body, and scalp, but rarely on the face, which assumes a dingy, bloated hue. The ankles and legs swell. The disease persisting, all these symptoms become more distinct and severe; hæmorrhage from the nostrils, mouth, bowels, etc., is added; swellings occur in different parts, and ulcers form on the legs, discharging a thin, fetid fluid. The bowels are generally more or less disordered from the beginning, and after a while become affected with the disorder known as “scorbutic dysentery.” The pulse is feeble, often rapid. The tongue is flabby, and marked with furrows by the teeth. The appetite is not impaired until the latter stages of the disease.

This disease is caused by deficiency of succulent vegetables and fruits; the use of unwholesome provisions and water; exposure to cold and moisture; previous diseases, e. g., fevers.

TREATMENT.—1. *Preventive.*—Supply fresh acidulated fruits, as limes, lemons, shaddocks, oranges, pomegranates, tamarinds, etc., fresh vegetables, fresh meat. Among antiscorbutics are also the following: tops of firs and mountain-pines; tar-water; molasses; wort, or infusion of malt; various fermented liquors and wines; vinegar; mineral acids; cocoa, tea, etc.

2. *Curative.*—When the disease has appeared, the free use of the above-named articles may be regarded in the light of medicines, at the same time that tonics are taken; mild aperients if the bowels be costive. Diarrhœa may be checked by chalk-mixture or creasote, and dysentery by Dover’s powder. Lemon-juice alone will cure the disease. Give it freely; give also the chlorate or tartrate of potassa, ten or fifteen grains, three times a day.

Purpura is another form of this disease, and yields to the same treatment.

CHOLERA.

There is a poisonous substance of unknown origin circulating in the blood, and this produces all the phenomena of the disease, by

its effect on the sympathetic system of nerves. It first simply irritates, and thus induces the premonitory uneasiness that usually occurs. The irritation, increasing in severity, next brings on the spasmodic contractions of muscles that make the excessively painful cramps. This spasmodic action affecting the muscles in the walls of the small arteries, the arteries themselves are contracted, and the circulation ceases. The interruption of the circulation has this particular result in the lungs: it entirely prevents those changes of the blood that respiration should effect (see account of Circulation in chapter on Physiology). The current of blood through the lungs, by which the venous blood that goes from the right side of the heart should be returned as arterial blood to the left side of the heart, is stopped entirely; and thus the whole mass of the blood becomes jammed in the large veins that lead to the right side of the heart, and there is no longer in the body any of the red blood that sustains life. Consequently there is loss of animal heat, loss of natural color, loss of the function of all organs; the body is cold, blue, in a death-like state, and the vessels of the intestines, loaded with this blue blood, are relieved from the pressure by the escape, through the walls, of the fluid part of the blood which is poured from the bowels in copious watery evacuations.

The symptoms of cholera are consonant with this history. There is first a premonitory looseness of the bowels, lasting for several days, or only for a few hours, generally with little or no pain. Following this, is the spasmodic action that closes the small arteries, and arrests the circulation—but this may as a spasm escape observation—it will however, be immediately seen in its effects. The sufferer suddenly has a sinking feeling, or faintness, sickness, and a profuse watery purge. This is rapidly followed by vomiting, and purging of thin motions resembling rice-water, or thin gruel, often with a peculiarly offensive odor. Severe cramps soon appear in the muscles of the abdomen, thighs, legs, hands, and arms. The tongue is cold; there is great thirst. The urine is suppressed. The surface of the body is cold, and bathed in clammy sweat, and looks blue. The pulse is small, rapid, and soon imperceptible. The voice has a peculiar whispering character. In this state the patient dies, if the spasm that closes the arteries is not relaxed, and the blood again started on its course through the system.

TREATMENT.—The first object is to relax the spasm. Use the following mixture:

Chloroform,	1 drachm.
Oil of turpentine,	1 ounce.
Water,	3 drachms.

Give a teaspoonful of this, and apply mustard-plasters over the whole abdomen, keeping the patient quiet in a warm bed. Relieve thirst by giving as much cold water as can be taken. Should the symptoms not subside, repeat the dose in half an hour; but, should they subside for a time and come on again, repeat the dose then. If the vomiting should be so urgent a symptom that the medicine cannot be kept on the stomach, remember that the vomiting itself tends in the direction the treatment should take. Encourage the vomiting, therefore, by giving plenty of water, or even mustard and water; and at the same time administer chloroform by inhalation. Give it carefully, and not so as to put the patient profoundly under its influence. Where this treatment fails, all treatment would be useless, from the greater susceptibility of the system to the influence of the poison.

Much success has attended the use of camphor dissolved in chloric ether, which also is a treatment aimed to relax the spasm; and probably more was due to the ether than to the camphor. It is best to adhere to the one most efficient agent, for it is a disease that affords no time for the trial of different remedies.

In the successful cases the patients become warm, and perspire freely when fully under the treatment, and are perhaps prostrate. It will be necessary then to stimulate gently with brandy and water, but in this always suppose that you may again excite the diseased action, and proceed with corresponding care.

Treat as fever the state in which the patient is left when the active disease is subdued.

In this account of treatment it is supposed that the patient will be in the dangerous stage before the recognition of the disease. Should the prevalence of cholera lead to the supposition that a diarrhœa coming on without known cause was but the commencement of this malady, treat that diarrhœa with castor-oil. The notion that a choleraic diarrhœa should be immediately checked was an error of the past.

Some success has attended the use of a solution of morphine, given by the hypodermic method, that is, injected under the skin. In this way, the system may be brought under the influence of a medicine that seems to fail in these cases when given by the stomach. Give an eighth of a grain in solution.

CANCER.

In the first stage there is a hard tumor attended with little or no pain; insensible to the touch; unequal or irregular on its sur-

face. In its second stage it ulcerates and becomes the open, cancerous sore, discharging a thin, acrid fluid, and attended from the first with severe pain, of an acute, cutting, or stabbing character. The ulceration spreads to the surrounding skin, and the adjoining glands are irritated; lastly, the blood becomes vitiated; the powers of life fail.

The most frequent external seat of cancer is the breast of females; internally, the womb or the stomach. Other parts of the body or of the skin may be its seat. It is likely to occur in the rectum, liver, bones, skin, brain, eye, lymph glands, testicle, ovary, tongue, and œsophagus. Cancer seldom occurs under thirty years of age.

Other tumors, not of a malignant or fatal kind, may be mistaken for cancer. Thus it very often occurs that a portion of the female breast becomes hardened after nursing, or in young girls. This tumor is not so hard or insensible to the touch as cancer in its first stage. It will remain in its form of tumor many months, but never proceeds to ulceration, and generally disappears if pregnancy occur. Simple hardening of any part or organ is usually preceded by inflammation, and disappears on amendment of the general health.

CAUSES.—Hereditary tendency; anxiety and distress of mind; depressing passions; bad and insufficient food; external injury, as blows, etc.

TREATMENT.—In its earlier stages much good may be done by medicines selected for the debilitated state of health. All means of cheering the spirits, external application of opiates, and other sedatives, will be serviceable. Avoid every thing that may irritate or accelerate ulceration. Narcotics and sedatives to be taken also, to relieve pain.

In the later stages, when the disease assumes the character of a malignant ulcer, treatment is mainly directed to moderate the disagreeable character of the discharge, and to soothe the pain. Extract of conium given by pill to the extent of three or four grains daily, or the tincture of conium to two fluidrachms daily, relieves the pain more effectively than opium, without so much disturbance of the digestive organs. Use as a lotion to the open ulcer the following:

Chlorate of potassa,	. . . . .	1 drachm.
Water,	. . . . .	12 ounces.

Cancer is progressive, and in the great majority of cases incurable. The disease consists in a tendency to perverted growth in the different parts of the system; and medicine knows no certain way to moderate or change that tendency, nor to get rid effectually of the

result. Should the tumor be cut away, the tendency remains, and the tumor will grow again in the same part or another.

Because physicians give so little encouragement in cases of cancer, the afflicted listen readily to professed cancer-curers, who of course promise any thing, and who can refer to any number of persons whose lives they have saved. Often the appearances in these cases are such as to impose upon intelligent persons, but, it will be generally sufficient to note that, though these persons may have cured something, there is no evidence but their own assertion that it was cancer.

For a more particular account of cancer, see diseases of the parts it commonly affects.

SCROFULA.

Scrofula is rather a generally diseased state of all the parts of the body than a definite malady of regular course. This condition of the system is acquired by the children of the poor in great cities, living in cellars, and up filthy alleys, never breathing the pure air, having always poor and insufficient food, exposed to the vicissitudes of changeable climates, and inheriting the enfeebled organs of drunken parents, or, worse still, a syphilitic taint. This condition is also developed in the children of the rich, overindulged in diet, late hours, etc. Certain pathologists have held that syphilis is always the cause of scrofula; that it is a lingering manifestation of the syphilitic taint, holding on through generations that have outlived all the better-recognized appearances of syphilis. Scrofula is hereditary, in so far that scrofulous parents can scarcely have healthy children; but, on the other hand, the condition is induced by the causes named above in the children of those who themselves were free from it.

Feeble development in every possible sense is the first general sign of the scrofulous condition. At twenty, a boy will have the size and general development proper to fifteen, and yet will be without the more buoyant characteristics of boyhood. If the child attain his proper height, there will be default of other growth, that should keep pace with growth in that direction. His spine is feeble, and curves. He perhaps had rickets in infancy. He is pigeon-breasted. All this is the result of languid performance of the several functions of digestion and assimilation. Intellectual inaptitude is usually as marked as physical debility.

In scrofulous infants there is a tendency to the occurrence of unmanageable skin-diseases, sore mouths, gatherings in the ear, colds in the head; and, as the child grows older, the glands in the neck

swell, and sometimes present great masses at either side of the jaw. If these form abscesses and ulcerate, the ulcers are indolent, unhealthy, and hard to cure. "White swellings," or scrofulous inflammation of the joints, occur in this period. In a still later stage of its development, scrofula appears as a visceral disease, inducing in women chronic inflammation of the womb, and in both sexes chronic inflammation of the lungs, and the deposit of tubercles in the lungs, in the abdomen (causing tubercular peritonitis), and in the brain. It is of practical importance to distinguish the cases in which diseases are induced by the scrofulous state, for in these the cure will be more readily effected by attention to this condition.

The point of greatest importance, in the treatment of scrofula, is to change the mode of life. Make sure that the patient has good food, of a nutritious character, and that is easy to digest; that he breathes pure air, lives in the light and the sunshine, uses the warm bath freely, takes moderate exercise, sleeps at regular hours, but not too long, and is not worked too hard. Without attention to these points, all treatment would be vain.

Medicine is only an adjunct. It must be such as will further the objects of the above treatment, in assisting to make healthy blood and a healthy nervous system. Iron and iodine are the two great agents, and the best preparation is the combination of these in the syrup of the iodide of iron. Give a child three teaspoonfuls of this a day for months together. Occasionally there will be encountered a scrofulous system that cannot endure iodine. In such cases, use the carbonate of iron in pills of three grains each. Give three to six or even twelve pills a day. Alternate this with the use of the liquor potassæ arsenitis, given in doses (to an adult) of three drops a day for a week. Give a child of twelve one drop three times a day.

INFLAMMATION.

Inflammation, as it occurs in the various organs and parts of the body, has differences mainly due to the differences in the several tissues, but there are certain features common alike to all inflammations; and it is this group of associated symptoms, constituting a morbid process rather than a disease, that we consider in this place.

The symptoms are, first, local disturbances of vital action in the part affected. If the part is visible, it will be seen to be unusually red, from the presence of more than the natural quantity of blood. From the same cause there will be pain and increased heat, and a change of function, ending in its impairment. Secondly, as the result of these disturbances of normal action, there is fever.

The redness may vary from light scarlet to dark purple; in common inflammation the redness is sometimes diffused, and gradually lost in the surrounding structures, while at other times it is abruptly circumscribed. *Pain* varies with the seat of the inflammation; thus it is tingling in the skin; throbbing in the tissue beneath the skin; sharp and cutting in pleurisy; sore, dull, and oppressing in inflammation of the chest, stomach, or kidneys; pain is more severe generally in proportion to the unyielding character of the part—as in bone or ligament. *Heat* is most remarkable in parts the more distant from the heart—as in the extremities. *Swelling* is most marked in the loosest structures—as in the lips, cheeks, etc. *Functions* are impaired, as shown by increased sensibility and tenderness, and by the alteration or arrest of secretions.

These symptoms may be either acute, that is, active and rapid in their course; or chronic, that is, passive and slow in progress. Inflammation is also much modified by the condition of the constitutional powers; thus, it may be attended with signs of debility, constituting what is termed low inflammation; or it may be attended with signs of increased force in the circulation, indicating an opposite condition of the system.

These differences are dependent upon the causes—for the disease may be excited by actual increase in the force with which the heart acts, or it may depend upon a decrease in the resistance which the smaller vessels oppose to the blood-current, making the force of the heart's action relatively greater.

Too full a diet, particularly too free a use of fermented liquors, is a *predisposing cause*. All causes which check habitual discharges, whether artificial or natural, especially the secretion by the skin, and all causes which considerably increase the force of the circulation, predispose to inflammation; and, if applied suddenly and to a great degree, may act as *exciting causes*. Whatever increases the impetus of the blood toward the part may become a cause, and all mechanical and chemical irritants are well known frequently to produce it; such are heat, sudden changes of temperature, the action of strong acids, alkalies, metallic salts, acrid vapors, acrid vegetable oils, bruises, wounds, etc. Vicissitudes of weather are a common cause.

In all cases of acute inflammation situated externally, the first circumstance to be attended to is, the removal of all such exciting causes as may happen to present themselves. If the irritation of a splinter of wood, bone, etc., for example, were to excite inflammation, every one would immediately see the propriety of removing it, and such a course must be adopted with every kind of mechanical

or chemical irritant present. After this is done, it will be necessary to moderate the increased action of the arterial vessels, thus lessening the velocity of the blood's motion toward the inflamed part, and to increase the secretions, by means of blood-letting, purgatives, antimonial and cooling diaphoretic medicines, cold lotions, a spare diet, rest, and a relaxed, easy position of the part inflamed.

The whole body, but more especially the inflamed part, must be preserved in as complete a state of rest as possible; and, in inflammation of the limbs, a proper position is highly necessary. They ought not to be allowed to remain in a dependent position, but be constantly supported in one that is elevated and easy, so long as the inflammation is at all violent.

The diet must be spare and low, all spirituous and fermented liquors and animal food being avoided for the first two or three days, or until the acute symptoms have passed away. Watery, cooling, mucilaginous drinks are highly proper and useful, and the best of such fluids are whey, butter-milk, barley-water, water-gruel, and decoctions of dried fruits, as figs, etc.

The medical treatment must meet the indications of lessening the violence of the heart's action, and relieving the oppression of the inflamed part or organ, and restoring the secretions. Blood-letting is often necessary in the young and vigorous, and in the vast majority of cases this may be local, and the blood be drawn by leeches. Opium will quiet the action of the heart, and tartar-emetic, acting as a depressant of the vital functions, generally will do the same.

Chronic inflammation depends less upon the violence with which the heart acts than upon the reduced power of the nerves that control the action of the lesser blood-vessels. It needs, therefore, a tonic or stimulant treatment.

There are certain terminations, or effects, of inflammation, which are denominated—1. *Resolution*, or recovery, the inflammation entirely subsiding without leaving any alteration in the part affected; 2. *Suppuration*, or the formation of *pus*, or “matter;” 3. *Ulceration*; 4. *Mortification*.

When suppuration takes place, the pain and redness for the most part abate, the temperature falls nearer to the healthy degree, and the throbbing becomes more sensible. A conical eminence, or *pointing*, as it is termed, takes place at some part of the tumor, generally near its middle. In this situation, a whitish or yellowish appearance is generally observable, instead of a deep red, which is previously apparent, and fluctuation of a fluid underneath may be discovered on a careful examination with the fingers.

Mortification results from intense inflammation in debilitated or

unhealthy constitutions; depression of vital energy, as in scurvy, typhus fevers, etc.; obstruction to the circulation in a part or organ, as in rupture or inflammation of the large vessels of a limb, or under certain changes which take place in the arteries of persons advanced in years; from external injuries, as bruises, spent balls, powerful chemical agents; extremes of heat or cold; some poisonous substances, as spurred rye (ergot), or the poison of venomous reptiles; impure air, as in overcrowded hospitals, producing "hospital gangrene."

It is indicated, 1st, by change of color, from the redness of inflammation, or the natural hue, to livid, violet, purple, and black; 2d, by falling of the temperature of the part; 3d, by the subsidence of pain in the part itself, while it is augmented in the surrounding structures; lastly, the part loses its consistence, becomes soft, and blisters form, containing fluid of a dark color and offensive odor.

These are the principal characters of mortification of external parts. When it takes place in the internal organs, its existence can only be inferred from the rapid and total cessation of the signs of inflammation, with symptoms of increasing prostration or sinking; viz., feeble pulse, cold skin, delirium, stupor.

When external mortification is complete, a line of demarcation will be established between it and the sound parts in those cases where there is sufficient constitutional vigor to cast off the dead portion. Ulceration will take place on the surface, and the mortified portion will be gradually, as it were, amputated. In this manner a whole limb may be cast off, or an extensive portion of skin; or, by dividing large vessels, it may cause fatal hæmorrhage.

In all cases of mortification, the constitution must be supported by tonics, of which quinine is, in all cases, the most to be relied upon. The diet must be nourishing, but care must be taken not to overload the stomach. A certain quantity of good wine, proportioned to the patient's strength and habits, and the symptoms of the complaint, is proper. Broiled mutton or lamb-chops, and fresh eggs lightly boiled, are very suitable; and water, impregnated with carbonic-acid gas, must be taken as the common drink. This acid gas is sometimes of the highest efficacy in this class of cases.

RHEUMATISM.

This is divided practically into three classes: 1. Acute rheumatism; 2. Chronic rheumatism; 3. Rheumatic gout.

Acute rheumatism commences as fever does, with languor, chilliness, thirst, restlessness, and a quick pulse; there is also a sense of

weight, coldness of the limbs, and confined bowels. There is a foul tongue, the urine is high-colored and turbid, the perspiration is profuse and sour-smelling, and there is more or less of wandering pain in the limbs. Doubt as to the character of the disease will soon be solved by the increasing severity of this pain, and, in the course of a few hours, it will fix on one or more of the large joints; all the appearances of the most active inflammation will follow; the joints attacked will be hot, red, swollen, and exquisitely sensitive, so that the pressure of bedclothes, or the movement communicated by the jarring of the room, will cause distress. The pain is frequently transitory, and apt to shift from joint to joint, leaving the part previously occupied swollen, red, and extremely tender to the touch.

Recognize acute rheumatism, therefore, by the concurrence of all these symptoms:

1. There is fever, but it has an active, restless, tormented, impatient, and not the depressed, submissive, appearance of fever simply.
2. Perspiration is profuse, and has a sour smell.
3. Tongue is coated but moist.
4. Bowels are not free, and what passes is offensive, and darker in color than is natural.
5. There is great pain, especially on any attempt to move.
6. The urine is scanty, more colored than usual, and deposits a sediment in the vessel.
7. The pulse is full, bounding, and accelerated.
8. No headache or delirium; the mind is clear, but, as pain prevents sleep, the invalid becomes irritable.

Fever may so distinctly precede all the evidently rheumatic symptoms as to deceive any one for a time.

This is a disease that should be treated promptly and actively at once; for, if not controlled or somewhat subdued within five days, it is apt to affect the heart, and thus endanger life.

Give a purge as soon as the disease is recognized, and encourage to further activity all the evacuations. Give at night five grains of calomel, with one grain of opium, to be followed in the morning by—

Powdered rhubarb,	1 scruple.
Tartrate of soda and potassa,	$\frac{1}{2}$ drachm.
Water,	1 ounce.

Keep the patient in bed in a warm room, and let him take, once in four hours, a tablespoonful of the following mixture:

Nitrate of potash,	$\frac{1}{2}$ ounce.
Tincture of cimicifuga,	2 drachms.
Water,	6 ounces.

Give at the same time Rochelle salts, an ounce a day, in divided doses dissolved in water.

While the pain continues, give a grain of opium every night at bedtime, with or without a grain of calomel. Attend at the same time to the joints. Use the following mixture:

Carbonate of potash,	. . . . .	6 drachms.
Decoction of poppies,	. . . . .	10 ounces.
Glycerine,	. . . . .	2 ounces.

Apply a piece of flannel, soaked in this, to the painful joint, under hot cloths. If the pain continue exceedingly severe, apply half a dozen leeches.

No hearty food should be taken during the four or five days in which this treatment is necessary.

As the pains abate their violence somewhat, test the urine with a piece of blue litmus-paper. If this is changed to red, continue the use of the nitre; if not, take only half the quantity, and in two or three days discontinue it. There may, in some cases, be left wandering pains, coming on occasionally at night, and there will be need to recur, for a dose now and then, to the nitre. Having discontinued the nitre, take a teaspoonful, every three hours, of the following mixture:

Decoction of cinchona,	. . . . .	4 ounces.
Tincture of cimicifuga,	. . . . .	1½ ounce.
Muriate of ammonia,	. . . . .	5 drachms.

CHRONIC RHEUMATISM.

Chronic rheumatism is attended with little or no fever or inflammation, the chief symptoms being pain and swelling in the large joints and in the course of certain muscles.

It becomes fixed most frequently in the loins, hip, knee, and ankles, but every large joint is liable to its attacks. The general heat of the body seldom exceeds its natural temperature, and the pulse is rarely quicker than eighty strokes in a minute; the joints are swollen, but not to so great a degree as in the acute form, being of a pale hue, cold and stiff, roused with difficulty to perspiration, and always comforted by the application of warmth.

Chronic rheumatism may follow the acute, but seldom does; more commonly it occurs in those who have never had the acute, in older persons, or in the less vigorous, or more careful. It depends upon the same poison in the system that causes the acute; but in the chronic this poison is present in smaller quantities. The obstinacy of this form depends upon the fact that the disease is kept up by the

state of the digestive organs, and thus medicines given to carry the poison out of the system often prove useless, because the poison is made as fast as it is carried out. Pains in the lower part of the back, lumbago, pains higher in the back, pains along the course of the ribs, dull pains over the whole head in bad weather, stiff neck, are all so many manifestations of chronic rheumatism. Pains through the body, running from the pit of the stomach to the spine, and felt acutely on taking cold, are usually due to rheumatism of the diaphragm. As any or all of these pains grow severe, use, for a day or two, the nitre mixture given above, and then for several days the cinchona. It is hopeless to attempt any thorough cure of this disease, without proper attention to the derangement of the digestive organs that is always present (see *Dyspepsia*); but the cinchona mixture will meet in a certain degree both troubles. In using any other remedies for the derangement of the stomach, the following will control the rheumatic pain:

Tincture of *cimicifuga*, twenty to fifty drops, three times a day.

This is the blacksnake-root, and those who live in the country may prepare it for their own use. The following is effective in obstinate cases:

Powdered guaiacum,
Precipitated sulphur,
Carbonate of magnesia,
Carbonate of soda; of each, one ounce.

Mix—take a teaspoonful of this in water three times a day.

Occasionally the pains of chronic rheumatism hold on with great obstinacy. In such cases, it is always probable that a syphilitic taint modifies the disease, especially if the pains follow the course of the bones, rather than leap from joint to joint.

Iodide of potassium is almost a specific in these suspicious cases, and therefore, if other means fail, it should be tried in doses of five to ten grains, thrice a day. In violent pains of the elbow, and other joints, aggravated at night, it is sometimes attended with complete success.

Rheumatic gout is rheumatism in gouty subjects. The gouty tendency locates and gives peculiar character to the new disease. Treatment exclusively directed at the rheumatism will fail. Both diseases must be treated at once. When this affection has resisted all plans of treatment for rheumatism, it will often give way immediately to treatment proper for gout; as the rheumatism, associated with syphilitic taint, is cured by the treatment for syphilis.

If, therefore, rheumatism that affects particularly the small joints is very obstinate, make the diet as nearly vegetable as possible; and,

without discontinuing the rheumatic treatment, give of the following mixture one tablespoonful three times a day.

Vinegar of colchicum,	. . . . .	. 2 drachms.
Diluted hydrochloric acid,	. . . . .	. 40 drops.
Water,	. . . . .	. 3 ounces.

GOUT.

Gout is a disease whose natural seat is the foot, but it affects other parts also; and from this fact, and some other peculiarities in its appearance, it has been classed into the regular and irregular forms. Although a fit of the gout is an acute disease, and may pass through all its stages, and disappear as rapidly as acute diseases in general do, yet gout is in a certain sense always chronic; an attack may at any day be brought on by neglect of the rules laid down for the guidance of persons who suffer from the malady.

Gout sometimes comes on very suddenly, but, in general, is preceded by various symptoms indicating a want of vigor in different parts of the body. The patient is incapable of his usual exertions, either of mind or body; becomes languid, listless, and subject to slight feverish attacks, especially in the evening; he complains of pains in the head, coldness of the feet and hands, impaired appetite, flatulency, heart-burn, spasms of the stomach, and the usual symptoms of indigestion. He is oppressed with heaviness after meals, and a disturbed, unrefreshing sleep ensues. The bowels are seldom regular, being either constipated or too much relaxed, the mind at this period being generally irritable, anxious, and alarmed at the least appearance of danger. A deficiency of perspiration in the feet also, with a distended state of their veins, cramps, and numbness of the feet and legs, and other strange sensations, often presage the approaching fit. The duration of these symptoms, previous to the fit, is various; sometimes only a day or two, at other times many weeks.

Commonly the sufferer is awakened in the night by the full onset of the disease, in the form of severe pain in the foot, with a sensation as if hot water were poured on the part. It sometimes extends itself over all the bones of the toes, and forepart of the foot, resembling the pain occasioned by the tension or laceration of a membrane. Cold shivering is felt at the commencement of the pain, which is succeeded by heat and other symptoms of fever. The pain and fever increase, with much restlessness, till about the middle of the succeeding night; after which they gradually abate, and, in the most favorable cases, there is little either of pain or fever

for twenty-four hours after their first appearance. The patient, so soon as he obtains some relief from pain, generally falls asleep, a gentle sweat comes on, and the part which the pain occupied becomes red and swollen. In most cases, however, the fit is not over, for the pain and fever return on the succeeding night with less violence, and continue to do so for several nights, becoming less severe till they cease.

Such is a simple fit of acute gout. But it often happens that, after the pain has abated in one foot, it attacks the other, where it runs the same course; and, in those who have labored under repeated attacks of the disease, the foot first attacked is often seized a second time, as the pain in the other subsides, which is again attacked in its turn, and they are thus alternately affected for a considerable length of time. In other cases, it seizes on both feet at the same time. After frequent returns, it begins to seize upon the joints of the hand, and at length the larger joints. When the gouty tendency is very great, almost every joint of the body suffers, the pain when it leaves one immediately fixing in another.

In strong people, the whole fit is generally finished in about fourteen days. In the aged, and those who have been long subject to gout, it generally lasts about two months, and in those who are much debilitated, either by age or the long continuance of the disease, till the summer heats set in. In the first attacks, the joints soon recover their strength and suppleness; but, after the disease has recurred frequently, and the fits are long protracted, they remain weak and stiff, and at length lose all motion.

The above are the symptoms of regular gout.

Irregular gout is the disease of a weakly or debilitated constitution. Here the inflammation and pain are more slight, irregular, and wandering, than in the acute; there is only faint redness of the affected joint, or no change at all of the natural appearance of the surface; much permanent distention of parts, or continued swelling, with impaired moving power, and no critical indications of the disease terminating. The symptoms are always accompanied with those of impaired digestion; this form of gout is not essentially different from what is called retrocedent gout, where the diseased action affects the stomach, heart, or brain. The cause of gout is the insufficiency of the bodily excretions, and more particularly the failure of the kidneys to perform their whole office. In health there is a certain proportion between the amount of what is taken into the system, as food, and what is rejected, and passes out by the bowels, skin, lungs, and kidneys. Natural appetite will always prevent our taking more food than can be acted upon by the system,

and an active life will keep the excretions free, and save us from the results of small errors; therefore, persons who live as they ought with regard to exercise, and take no more food than Nature prompts, never have the gout. On the contrary, it is the disease of those who indulge in great dinners, and take their exercise in that travelling arm-chair a nicely-cushioned carriage. Men who have robust constitutions, as the result of active early life, but who live more lazily as they come to middle age, and who stimulate a flagging appetite with all the devices of cookery, and who, moreover, use wine freely, are the victims in the great majority of cases. Eating freely, and not digesting well, and, above all, not getting rid of the excess, they form in their systems the poison that finally causes gout. Gout appears sometimes in the poor, and feeble, and in the pauper-hospitals, but this does not furnish any ground against the above account of its origin. In these persons, their confinement to bed, or to hospital wards, is analogous, in some degree, to the lazy life of the other class, and even hospital diet is often too much for their digestive powers; these as a rule have irregular gout, when they have any.

From this it follows that the true cure of gout is the reëstablishment of the proper relation between what is taken into the body and what passes out. There is no other absolute cure, but all the gout specifics are merely temporary expedients. Colchicum, used for ages as an effective remedy, certainly possesses specific powers in relieving the pain of this disease, and, under judicious management, is a medicine of great value; but, if used frequently and in large doses, as a principal means of removing the malady, it can never fail of proving highly and permanently injurious. Its good and bad effects may be stated in a few words. When it is used in small doses, occasionally repeated, in conjunction with suitable purgatives and alteratives, it frequently materially assists the full and efficient operation of those medicines, and is of great service in relieving the pain of the disease, without being followed by any subsequent injury. But if, on the other hand, it be employed in considerable doses, freely repeated, as a chief means of cure, the practice is as destructive in effect as it is bad in principle; for although in first using it the patient finds its operation to be most pleasing and soothing, yet, in this way of employing it, it soon grows less and less effectual in relieving the fits, while, from its injurious influence on the stomach and nerves, it engenders so great a degree of debility in them, as leads to a more speedy return of subsequent paroxysms, which also become of a more severe and intractable character. Thus the unhappy victim of an apparently

valuable but delusive remedy finds, often when too late, that he has been trusting to that which, in giving him present relief, has robbed him of future comfort, by entailing on him excessive and permanent debility of the stomach, nerves, and general system, and by inducing a state of chronic gout from which he is scarcely ever free.

In the acute attack, begin the treatment of gout by attention to the bowels and kidneys—at the same time that specifics are given. Use the following pill :

Calomel,	5 grains.
Purified aloes,	5 grains.
Acetic extract of colchicum,	5 grains.
Powder of ipecac.,	10 grains.

Mix, and make ten pills.

Take two pills every fourth hour, and, after three or four doses have been taken, give a draught of 10 grains of sulphur and 10 grains of sulphate of potash in half a tumblerful of water. When this medicine has acted freely, the pain will be somewhat less. Give the first, then, less freely—one in five or six hours, and at the same time give three times a day 10 grains of the iodide of potassium dissolved in sufficient water. Should the malady not yield to this treatment, give, two or three times a day, one of the following pills :

Sulphate of quinine,	30 grains.
Extract of digitalis,	5 grains.
Acetic extract of colchicum,	10 grains.

Mix, and make ten pills.

Should the disease still hold out, it is better to make no further effort to subdue it, except by the regular rational treatment of restoring the proportion between absorption and excretion. Some very distinguished physicians, among them Trousseau of Paris, have even recently held that it was dangerous to attempt to modify the paroxysm of regular gout, lest the violence of the disease should fall on some part less able to endure it than the foot. Make no application to the foot, but relieve pain by the use of the acetate of morphia. Dissolve 1 grain in 1 oz. of water, and begin with a teaspoonful, giving as much more as may be necessary to soothe.

Upon the subsidence of a paroxysm the treatment must be directed to preventing a recurrence. In this, the treatment, if persistently and patiently followed up, is one of the certainties of medicine. No man need have the second fit of gout if he will adhere with ordinary firmness to such rules of living as naturally flow from what we

have said as to the cause of gout. Relinquish entirely the use of colchicum. Let the bowels be kept free, the kidneys active, and let plain food be used within the promptings of natural appetite, rather than to have appetite stimulated by culinary contrivance. Use freely of some saline mineral water—Congress water or the Gettysburg water is quite equal to any of the European waters in their effect. Dine on a single dish, and use no malt liquor, and but little of any sort.

In irregular gout the pain is less positively confined to the foot, but wanders somewhat, and is peculiarly liable to assail great organs, as the stomach, the heart, and the brain. In these cases the disease yields, as in the others, to the treatment that carries the poison out of the system, but it will also be necessary to take more active measures against the immediate paroxysm. These measures consist in the application of heat to the feet in all cases, with a view to excite the manifestation of the disease there. If the brain suffers, apply cold to the head; if the heart or stomach, apply to the surface a mixture of equal parts of tincture of aconite and chloroform. In these latter cases, an ounce or two of brandy and 30 drops of laudanum may be given, if the paroxysm is violent; or the compound spirit of ether may be given in drachm-doses, repeated at short intervals, as the occasion seems to require.

Remember always that, whatever may be the form which gout assumes, it is certainly connected with disorder of the digestive organs, and in no disease is the preventive management productive of more benefit. The primary object, should there exist a predisposition to the disease, is to withhold all redundancy of nutrition; but at the same time to sustain the vigor, and to avert as much as possible any tendency to inflammatory excitement. Too spare diet and excessive or fatiguing bodily exercise are not only unnecessary, but they often prove as injurious as the opposite extreme. The object is to prevent plethora, and to obviate it if it display itself. To prevent plethora, every tendency to fulness from diet must be shunned; animal food should be moderately taken, and all fermented liquors left alone, or used quite sparingly.

It is of the utmost importance to commence the renewal of the movements of the affected joints as early as possible after the pain is allayed. Their strength and flexibility depend solely on the early renewal of motion: on the contrary, rest tends to retard the restoration of the affected parts to complete health. They remain painful and stiff, and resist every movement which is attempted; the more motion is cultivated, the sooner are the limbs restored to their natural functions. Their exercise recovers the balance of the circulation,

prevents effusion, aids absorption, and consequently favors flexibility. If rest be indulged, from the dread of pain, the joints and the parts surrounding them become rigid, contracted, and their free action permanently impaired, while the muscles waste and lose their power of contracting.

SYPHILIS.

Syphilis, as a disease of the general system, results from the absorption of poison from a sore on the genital parts, or it is inherited from syphilitic parents, or it is communicated to a child by a wet-nurse, or to a wet-nurse by the child. In these cases the manifestations of the disease are called secondary and tertiary; the primary manifestation being the original sore communicated by direct contact with one having the disease.

Of the primary syphilitic sore called a chancre, occurring on the genital parts, there are two varieties—the soft chancre and the indurated. The soft chancre is a local disease at first, and, if treated within four days of its occurrence, is cured completely; the hard chancre is less certainly curable. The indurated chancre is known by its hard base, sharp edges, and the inflamed circle around it. These indicate the action of the specific inflammation in the tissues beneath the sore. In the soft chancre there is none of this, only the appearance of a simple superficial sore, with a thin gray pus over it.

Secondary symptoms affect—

1. The lymphatic glands, causing bubo.
2. The mucous membranes, causing ulcerated sore throat, ulcers in the larynx, etc.

3. The skin, causing ulcers and eruptions.

4. The eye, causing inflammation of the iris.

Tertiary symptoms affect—

1. The bones, causing tumors, and decay and death of the bone.
2. The viscera.

Secondary symptoms, occurring in the persons of those whose systems have been contaminated by the poison of the primary sore, are recognized without difficulty; but, at another remove, the case is less easy, and it is often a very delicate point to determine whether sores on an infant, for instance, are syphilitic; while tertiary symptoms, especially when the disease is hereditary, are laid to the score of rheumatism with much persistency.

If the chancre has not been treated with such energy as to destroy, at the very commencement, its specific character, and thus prevent the poison altogether, the system will give evidence of the presence of the disease within a few weeks. There is a syphilitic

fever, all the symptoms of which, however, may very likely pass with little notice, except the headache. This is obstinate, persistent, sometimes intermittent, and there is often pain in certain joints. Associated with the headache, in point of time, is an enlargement of the glands in the back of the neck, a sign almost constant. Following these premonitions, in from thirty to forty days from the appearance of the first sore, there are eruptions on the skin. These may assume any form; they may be erythematous or pimply, pustules or vesicles; the only positive sign, by which they can be known to be syphilitic, is their color. This has a coppery tint that is not only seen in the eruption, but in the scar it leaves. Unlike the eruptions of skin-diseases, for which they might ordinarily be mistaken, these eruptions cause no pain and no itching. On the scalp, there may be itching, but this will be because some other eruption is there mingled with the syphilitic. The eruption may dry away in scales, it may become scabby, or it may give rise to deep, tenacious, suppurating ulcers. Symmetry is a noteworthy characteristic of the eruption. At the point where there is a patch on one side of the body there will be one of similar shape and size on the other side. Eruptions of certain forms favor particular parts, as the inner side of the arms or thighs, the soles or palms, and the scalp. Generally these eruptions are of chronic character. That form which favors the inner face of the upper limbs, as the inside of the bend of the elbow, is the commonest eruption, and some maintain that it is constant; that it is always part of the manifestation of constitutional syphilis; that, if this is not part of any eruption, that eruption cannot be due to syphilis. This comes early, often at the same time that the lymphatic glands are swollen. It may appear as early as three weeks, as late as four months, after infection. In addition to the points it chooses on the limbs, it appears on the breast, abdomen, and flanks; very rarely in the face or neck. It is, at the commencement, of a rose color, but becomes coppery, just perceptibly elevated, disappears on pressure, and occurs in irregularly-rounded spots of variable size, that generally have a more or less distinct circular arrangement.

The syphilitic sore-throat may be indicated by a uniform redness over the whole apparent surface of the palate and the tonsils, and a dryness and burning feeling, or by the same appearance in points that subsequently become elevated and ulcerate. If the voice become rough and hoarse, it is because the disease has attacked also the lining membrane of the larynx. In consequence no doubt of the extension of the disease, stricture of the œsophagus (the passage to the stomach) sometimes occurs. Stricture of the rectum is also an occasional result of syphilis.

The loss of the hair may occur at different periods in the disease, before any eruption, or much later; sometimes the hair grows again, sometimes the baldness is permanent; occasionally the nails fall also.

Generally, the disease does not reach the tertiary stage, but disappears earlier, yielding to the curative influences of a proper mode of life, or to medical treatment; but tertiary forms, when they occur, endanger life. They seldom occur before the sixth month, and may be delayed for ten or twenty years.

The most usual appearance of the tertiary form of syphilis is in disease of the bones that induces changes. Hence, when it takes hold of the bones of the cranium, as often happens, it is very apt to prove fatal. When these pains are first felt, it may be in the head, the arm, or leg; the part affected neither changes in size, color, nor temperature. The pain comes without known cause, is very deep, and is increased by pressure, is fixed and circumscribed, and becomes worse at night. At first, indeed, the pains are felt only during the night. The pain only indicates the change that is in progress in the bone, and which is yet imperceptible. The pains may last thus for two years, without apparent change in the part, but generally the effect is sooner seen. The syphilitic inflammation of the bone, thus begun, may directly destroy part of the bone, or may produce tumors of the class called "nodes," and operation for cutting away part of the bone often becomes necessary.

So long as a man has syphilis in the secondary stage, the child he begets will inherit the disease. It is not necessary that there should be obvious manifestations of the disease upon the father, but it must be in the secondary stage. Should there have been tertiary manifestations, his child will not be syphilitic, but scrofulous.

Usually, an infant inheriting syphilis is born healthy-looking, but sometimes the skin is of a dull color, and the features have a pinched, sharp expression. Generally, within the first month, the disease comes on with trouble in the nostrils—"snuffles," cough, difficulty in sucking, dryness of the lips and mouth; and superficial ulcerations follow about the mouth and throat. These parts, the buttocks, anus, and bends of the joints, become copper-colored, and crack, and the child wastes. Syphilitic disease of internal organs may destroy it.

TREATMENT OF A CHANCRE.—There is no proper antidote to the syphilitic poison, and the only chance to prevent infection of the system from a chancre is to destroy entirely, by corrosive agents, the specific character of the pus of this sore, and the tissues in its immediate neighborhood that are already contaminated, and from which the poison may be taken up by the system. Cauterization,

in the view of Ricord, makes the chancre a simple sore. If there is a soft chancre, therefore, wash it thoroughly with a jet of water, and then apply enough freshly-made Vienna paste to cover it. Remove this after a minute, and apply a poultice, and afterward use freely, till the sore heals, the following wash :

Hydrochloric acid,	1 drachm.
Water,	2 ounces.

Mix.

The nitrate of silver is not sufficiently powerful to destroy the tissue. Pure nitric acid may be used, but the Vienna paste is better.

This local treatment will certainly prevent further effects, if adopted when the sore is not more than four days old. If the chancre be one with hard base, use exactly the same means, but in this case it is not certain that they prevent constitutional infection; the chance that they may, should, however, not be thrown away. This is the advice of Ricord, who, nevertheless, says this sort of chancre is inevitably followed by constitutional disease.

Should there be inflammation of the part, with the sore, it will be necessary to reduce this before using the caustic.

Keep the patient at rest if possible for some days. Enforce upon him the necessity of abstaining from the use of all malt or spirituous liquors—of using meat only once a day, and of keeping his bowels free by mild laxatives.

Mercury may be used, when the system has been thus prepared, with every chance of realizing its best effects.

Mercury, given at this time, will facilitate the healing of the sore; and this is a real advantage, for the greater or less severity of secondary symptoms, should they come, seems to depend in a considerable degree upon the duration of the original chancre. Give the following pill :

Corrosive chloride of mercury,	2 grains.
Extract of guaiacum,	32 grains.

Mix, and make 32 pills.

Take one pill three times a day. If the chancre takes on an unhealthy appearance, and extends into new tissues, give iron :

Tartrate of iron and potassa,	1 ounce.
Water,	6 ounces.

Mix. Take a tablespoonful twice a day.

TREATMENT OF SECONDARY SYMPTOMS.—Mercury can no longer be looked upon as an antidote to the syphilitic poison; and, as the

belief that it was, was the origin of its universal and indiscriminate use in this disease, such use is no longer reasonable. Although mercury is not an infallible remedy, it is certainly often a useful and effective medicine; in certain states of the system it will conduce more directly to a cure than any other, while at other times it may do only harm.

If the primary disease was treated with mercury, give iodide of potassium immediately on the appearance of secondary symptoms, in doses of 5 grains in water three times a day, acting on the bowels with an efficient dose of blue pill (10 grains). Should the treatment seem ineffective, after a few days vary it, by giving, twice a day for three days, one grain of calomel, or ten drops of the liquor arsenici et hydrargyri iodidi. Recommence afterward the use of the iodide of potassium, and it will be more effective.

Should it be deemed desirable to attempt the treatment without mercury, put the patient on the free use of sarsaparilla, and a good diet, and give the following powder:

Purified sulphur,	1 drachm.
Sulphuret of antimony,	5 grains.
Nitrate of potash,	5 grains.

Mix.

This quantity is to be taken every day—half in the morning and half at night, and the medicine must be perseveringly used.

Use as a gargle for the sore throat:

Tincture of iodine,	1 drachm.
Tincture of opium,	1 drachm.
Water,	6 ounces.

Gargle the throat several times a day.

When, following a primary sore, there are tenderness in the groin and stiffness as the patient walks, a bubo is forming. Insist then on rest for the patient, and paint over the enlarged gland, night and morning, with a strong solution of iodine. This will, perhaps, prevent suppuration; but, should suppuration still seem inevitable, hasten it with warm applications. When matter is ready to be discharged, open the bubo with Vienna paste. Dress it with lint wet with a weak solution of sulphate of zinc.

When the hair threatens to fall, cut it close, use warm baths, and apply the following liniment: equal parts of alcohol, cologne water, and castor-oil.

Tertiary symptoms can only be controlled by the continued use of mercury, of which the best form is the corrosive chloride, which

should be given in doses of the twelfth to sixteenth part of a grain twice a day. Against the nocturnal pain, use opium, and avoid all exposure.

For syphilitic disease in infants, use hydrarg. cum creta, two grains a day; or, if the infant is very feeble, one grain continued for a fortnight; upon stopping the mercury, give in syrup of sarsaparilla one grain a day of the iodide of potassium.

TUBERCULOSIS.

This word is employed to indicate a condition of the system in which there is a tendency to the deposit of tubercles in different organs. Commonly, the word tubercle is most heard in connection with disease of the lungs, and tubercular disease of the lungs occurs more frequently than other tubercular disease; but tubercles are also deposited in the brain and in the intestines, especially in children, and may, indeed, be deposited in any organ urged to great functional activity.

The matter of tubercles leaves the vessels as a portion of the mass of nutritive material conveyed to the part; but it is, through the enfeebled vitality of the system, of so low a character that it is not assimilated, and remains in the condition in which it is deposited, acting much as a foreign body. Remaining in the part a certain time, it becomes a source of local disease by the irritation it excites. Thus in the brain it causes hydrocephalus, and in the abdomen tubercular peritonitis. Eventually it softens, as in the lungs; sloughs, and is carried out of the system. As it has by its presence excited disease in much of the neighboring tissue, that also is destroyed with it. Thus a deposit of tubercles in the lungs leads to extensive destruction of the delicate pulmonary tissue, and, if uncontrolled, will be fatal through this fact.

All things that depress the vital energy, and modify the course of healthy nutrition, whether they act on the nervous system, or on the blood, tend to produce the state of the system in which tubercles occur. Scrofula or syphilis in parents, privation, exposure, residence in unhealthy districts, disappointment, and anxiety, are all possible causes.

If inflammation occur in those having the tubercular disease, the exudations are prone to be modified by it, and, instead of being those of ordinary inflammation, to consist of tuberculous matter. Especial care to guard against such accident is necessary in scrofulous subjects, and in all such equal care should be taken to improve the vital quality of the blood.

DIPHTHERIA.

This disease, like the fevers, presents several varieties. There is a simple diphtheria, in which there is fever with sore-throat; a croupy diphtheria, in which a membrane forms rapidly in the throat, and extends to the larynx; a form in which the trouble in the throat is ulcerative, and one in which it is malignantly intense in its onset, and is characterized by hæmorrhage, not only from the throat, but from the stomach or bowels. In all there is always more or less membrane, but the second kind is the only one in which the membrane is the actual cause of death. In that variety it kills by suffocation. Ranging, in severity, from the simple to the malignant varieties, the disease may resemble a mild fever, passing off after several days, or it may strike with terrific suddenness and kill in a few hours, sometimes the patient falling a victim to the constitutional effect of the disease before it appears in the throat at all.

There is general uneasiness, with perhaps intense headache and discomfort in the throat, and a swelling of the glands behind the jaw. Fever comes on, and there is difficulty in swallowing. Over the throat and tonsils there is a deep red, almost purplish color, and in two or three days a whitish membranous deposit. In the simple form of the disease matters continue this way for several days, when the throat clears up and the patient becomes convalescent. In the croupy variety, instead of disappearing, the membrane constantly increases, and invades the larynx, as the croupy, barking cough and whistling respiration will indicate. The ulcerative variety seems identical with the putrid sore-throat. The malignant is always fatal. It seems due to a deeper poison than the other varieties. Often there is very little local disease apparent, which may only be due to the fact that the disease has begun in the stomach, and kills before it gets up to the throat. This is apparently the explanation of the hæmorrhages that occur in this form.

Diphtheria in those who recover is sometimes followed by temporary paralysis.

This disease has appeared to be contagious in some well-marked cases.

TREATMENT.—Give an adult from the commencement twenty grains of chlorate of potassa, every three hours, and sponge the throat and tonsils thoroughly and effectively with a solution of nitrate of silver, one drachm to an ounce of water. If prostration come on, support with wine or brandy, and feed with beef-tea. This is the plan that promises generally the best results. Many physicians

give calomel freely, and claim that a case is never lost where the system is brought under the influence of mercury. Tincture of the chloride of iron has proved effective. Give twenty drops every three hours. This may be given with the chlorate of potassa. Sulphate of quinine may be given in doses of one grain every two or three hours. In the worst forms, with great prostration, the only hope is in the stimulants, the chloride of iron, wine and brandy, and the beef-tea.

DISEASES OF THE CHEST AND RESPIRATORY ORGANS.

CATARRH.

THERE is a simple form of catarrh, the coryza of physicians, and this is one of the manifestations of a common cold, and is universally known as cold in the head (see Common Cold). There is another catarrh, however, that is of a malignant character. This is the ozæna of the doctors—this word signifying a stench. Any one familiar with the disease will recognize the propriety of the name.

Malignant catarrh may be the result of many long-continued attacks of simple catarrh in scrofulous persons, and of ulceration of the inner part of the nose, however brought on by specific diseases.

There are always uneasiness and a stuffed-up condition of the nose; there are headache, and a profuse discharge of bad-smelling matter from the nose. This discharge sometimes dries inside the nose in flakes and crusts, and there rots, giving forth an odor worse than when it was fresh.

The treatment must be local and general. The nose must be regularly syringed with warm water to keep it clean; and then washed, also by means of a syringe, with strong liquor of chloride of lime—half an ounce of the lime to a tumblerful of water. Vapor of iodine may be inhaled with good effect. Throw a few drops of iodine on any thing hot enough to vaporize it, and draw the vapor through the nose.

The general treatment should be cod-liver oil and iron. They may be taken together, in a mixture of four ounces of the oil with sixteen grains of the iodide of iron, so that every half-ounce dose of the oil will have two grains of the iron. Another form of iron that is very effective is the carbonate as prepared in Valet's mass. It may be taken in very large quantities, from eighteen to sixty grains

a day. A good plan is to begin with six three-grain pills a day—and add a pill every day till ten are taken. This must be continued for months. If there is any probability of syphilitic taint, give hydrargyrum cum creta in five-grain doses, once in three days, till its effect is seen.

INFLAMMATION OF LARYNX.

This disease is sudden in its invasion, and, if not controlled at once, is very dangerous, destroying life by suffocation, as it closes the air-passages. It begins as a sore-throat, but occasions a greater distress than the appearance in the throat would account for. Swallowing then becomes difficult, and the voice is affected. Ordinary sore-throat may hardly affect the voice; but, as the larynx is the organ of the voice, its disease becomes peculiarly evident in this change. The voice becomes hoarse and croaking, or may fall to a scarcely-audible whisper. Breathing becomes difficult, and is forced and painful, and the cough has a ringing, high sound. Great tightness is also felt, and the breathing is still further impeded by a stringy, tenacious mucus.

Exposure to cold is a common cause of this disease. Indeed, the sore-throat due to a common cold sometimes ends in this way, by extending into the larynx. Contact of irritating gases, as too strong ammonia, may also cause it, and it happens in children as the result of swallowing, by mistake or otherwise, scalding water.

TREATMENT.—Apply cups at the back of the neck, and on both sides of the neck, and leeches to the top of the breastbone—in an adult, at least twenty leeches; in a child of five or six years, from two to six. At the same time, apply to the throat, and the whole front of the neck, water as hot as it can be borne. Give tartar-emetic, half a grain immediately, and keep the patient under the relaxing influence of that medicine, by doses of an eighth to a quarter grain, once every half hour. Give also ten grains of calomel to an adult.

If the disease continues severe, it may be necessary to open the windpipe, to save life, and this, of course, can be done only by a surgeon.

CHRONIC LARYNGITIS.

This occurs not as a consequence of the former, but as a result of syphilis, or tubercles. In the latter case, it is a form of consumption, and must be treated in the same way. In the former, the disease only yields to treatment proper for the syphilis. (See those diseases.)

CEDEMA GLOTTIDIS.

As one of the consequences of inflammation of the larynx, the membrane at the top of the glottis, at each side, becomes greatly swollen, dropsical in fact, and these swollen parts, meeting over the opening, close it and prevent the entrance of air. This, of course, will destroy life in very few minutes. By passing the finger down the throat, the offending cause may be felt in the puffy, expanded membrane. There is no remedy but to puncture this with a sharp instrument, and let out the water. This must be done, with little time lost in thinking about it.

CROUP.

This disease generally commences with catarrh and hoarseness; or, perhaps, without any such premonitory symptoms, the patient is attacked (most frequently in the night) with difficulty of breathing, each respiration being attended with a peculiar shrill sound, somewhat resembling the passage of wind through a horn or metallic tube. There is a short, dry cough, which has a peculiar barking sound, and is sometimes attended with expectoration of tube-like fragments of membrane. The voice is harsh and grating; the patient is feverish and restless; the countenance distressed; the pulse rapid. If not arrested, suffocation ensues: it may be in a few hours, or it may not prove fatal for several days.

Constitutional predisposition, and the age of infancy, exposure to cold, or to a keen easterly wind, are the causes. Croupy cough neglected may terminate in croup, and there is but little hope in treatment, unless the disease is recognized early. For this reason, every disease that invades the larynx or glottis should be very closely scrutinized from its commencement. In general, very considerable heat of the surface is an early symptom of croup. In any disease, therefore, attended with increased heat, and marked by any change in the voice, and by a husky and hoarse cough, and a whistling respiration, watch the interior of the throat for the characteristic sign of this most formidable disease, the false membrane. Remember, however, that though the sight of this membrane assures you of the nature of the disease in which it occurs, the disease may still be croup, though you fail to see any membrane.

TREATMENT.—Put the patient in a hot bath. Give fifteen or twenty drops of ipecacuanha-wine in a little warm water every five minutes, until vomiting is produced.

To a child over one year of age, a teaspoonful of ipecacuanha-

wine, repeated every ten minutes, will not be too large a dose when given as an emetic. It is a safe remedy, as it will produce vomiting without the depression of the heart's action, which sometimes follows on the administration of antimonial wine, and which therefore renders the latter a less safe medicine.

While the patient is in the bath, apply a mustard-plaster to the front of the neck and upper part of the chest, and apply water nearly scalding on the throat, immediately under the chin, with a sponge.

These means, if *promptly* employed, will generally arrest the most dangerous symptoms; but, if the attack be severe, or if the symptoms do not yield, two or three leeches must be applied, care being taken that they bite over the bone of the upper part of the chest, as pressure to stop their bleeding cannot be used on the neck. The bleeding should be stopped by cold or pressure, as soon as the leeches come off. If, in the course of five or six hours after the removal of the leeches, the symptoms have not markedly diminished in severity; if the cough and the breathing be still harsh and rough; if there be no sound of moisture or phlegm with the cough, a blister-plaster should be applied on the chest near or over the leech-bites. The plaster should remain on only two hours, and when removed a warm bread-and-water poultice should be applied to the surface.

If the immediate inflammatory symptoms abate, give quinine, a grain an hour. Should the inflammatory symptoms not yield, get a doctor, if it is humanly possible.

INFLAMMATION OF THE LUNGS.

This is denoted by the occurrence, in an acute disease, of pain in the chest; difficulty of breathing, alleviated by an erect position; tumid, purple face or lips; distressing cough; a strong, hard, and frequent pulse; pungent heat of skin, and fever. These symptoms vary considerably in different cases. The difficulty of breathing is the most constant symptom, and becomes considerable in all cases as the disease advances. The pain is sometimes peculiarly acute, and at other times heavy and dull, and it may be either in the right or left side, or under the breastbone, collar-bone, spine, or shoulder-blades. The cough is often very distressing, being in some cases dry, in others attended with spitting. The pulse is very hard and strong; the thirst considerable; the tongue often dry, white, and rough; the urine scanty and high-colored, and there are an anxious expression and dusky hue of complexion.

When the determination of blood to the head is very great, and marked by stupor in the commencement of the disease, the symptom is extremely unfavorable. Delirium is likewise a very dangerous symptom.

Inflammation of the lungs may exist with little or no pain, when the real nature of the case may be known by the constant difficulty of breathing, painful cough, presence of fever, and sometimes by the nature of the expectoration. This has an appearance quite characteristic: it is like glue in its adhesiveness, and, when received into a flat and open vessel, unites into so viscous and tenacious a mass, that we may turn the vessel upside down without the expectorated matter being detached; and if we shake the vessel its contents vibrate like jelly, though in a less degree. But the color of the expectoration is still more characteristic. It is prune-juice color, but may shade away to so light a hue as just to be tinged with lemon-color. It is never white. This will enable any one to distinguish that the disease is neither pleurisy, nor inflammation of the heart, nor bronchitis. In the two former, there is no expectoration. In the latter, the expectorated matter is white.

TREATMENT.—When the fever, pungent heat of skin, pain, and difficulty of breathing, are urgent, in tolerably strong persons, especially in the country, blood should be immediately drawn from the arm to the extent of twelve ounces. This will prove a remedy of great power. But, if the patient's constitution is weak and exhausted, and low fever is present, then bloodletting will do harm. If inflammation of the lungs has come on after extreme domestic anxiety and distress, whereby the general powers of the system have been prostrated, or in a weakly habit, or in old age, bloodletting should not be employed. Even should it, if used in these cases, seem temporarily beneficial, it will render the patient less able to endure the disease in its later stages. But, where it is not advisable to draw blood from the arm, it will nearly always be good, particularly in the young, to take some blood by leeches, or by cups applied effectively at the seat of the disease. Twelve leeches is a fully effective number. Counter-irritation is a remedy of great value. Place a blister over the diseased side, and get its full action; and, when it is taken away, dress the surface with oiled silk. Or, if the subject is of too sensitive and irritable a temperament for the use of a blister, envelop the whole chest in a large warm poultice made of meal or bread. Renew this as it gets cold, but never take off one poultice till another is ready.

Tartar-emetic is of great service in all inflammations of the chest. It is employed alone in these complaints by many French and Italian physicians. They have trusted mainly to large doses of this

substance in such cases for many years past, and with admirable success. It is a medicine that may be used without either the bleeding or the counter-irritation. Commence in an adult with giving a tablespoonful of the following mixture, every two hours, in a teacupful of barley-water or tamarind-tea :

Take of tartar-emetic,	12 grains.
Water,	6 ounces.
Syrup of saffron,	2 drachms.

In general, the quantity of tartar-emetic ordered in this mixture should be increased three grains a day, till the patient takes twelve, fifteen, or twenty grains during the twenty-four hours ; the dose of the mixture being still a tablespoonful every two hours. If much tendency to sweating occurs, three or four drachms of the sweet spirit of nitre may be added to the mixture ; and, should there be much uneasiness and seeplessness, a drachm of tincture of opium may be mixed with it. The following are the usual effects of the medicine : the patient generally vomits after the second or third dose of the first mixture, and afterward it either acts on the bowels, or produces no other sensible effect than that of mitigating quickly the symptoms of the disease.

If there be loss of sleep, give at night one grain of opium with one grain of calomel ; or give ten grains of Dover's powder.

It is hardly necessary to direct that the patient be kept in bed, in a room moderately warm and quiet. No solid animal food should be taken, only barley-water and similar mixtures, unless the fever should assume the character of typhoid fever, when it will be necessary to sustain with beef-tea and wine.

PLEURISY.

Pleurisy may be caused by exposure to cold, blows, falls, or any thing which gives rise to inflammation in other parts ; those of a full plethoric habit are chiefly subject to it.

The early symptoms are generally cold chills, shivering-fits, and rigor, followed by acute pain in the side, a flushed countenance, difficulty of breathing, dry cough, and full, hard, and frequent pulse.

Pain is nearly always present, generally in a particular spot under one of the breasts, but sometimes at another part of the chest, or on the shoulder, the armpit, or under the collar-bone ; it is greatly increased by pressure, coughing, and deep inspiration ; the patient, therefore, breathes thick and short, suppresses coughing as much as possible, and fears to exert himself, or to lie down. Sometimes the

inflammation causes a sticking of the pleura, and adhesion of the membrane covering the lungs, and that which lines the chest; at other times there is an effusion of fluid into the cavity.

TREATMENT.—Bleeding from the arm should be at once resorted to in a robust person, not in the aged nor in those enfeebled from any cause. Leeches, or cupping, and a warm poultice to the seat of pain; a large blister after the latter comes off, if necessary; a full dose of calomel (ten grains), and then tartar-emetic about every two hours, beginning with half a grain, and increasing it to two grains; if this produces vomiting and purging, lessen the dose again, and add six drops of laudanum to each. When the urgent symptoms are relieved, give hydrargyrum cum creta in three-grain doses every night, with small doses of opium, quarter to half a grain. The diet must be low, and perfect quiet maintained; the temperature of the room kept up to about 60° Fahr., and the patient somewhat elevated in the bed. Should symptoms of exhaustion arise, the difficulty of breathing increase, and coma or delirium be threatened, recourse must be had to stimulants, such as beef-tea, with wine, or ammonia. Give five grains of the carbonate of ammonia in a mixture of three tablespoonfuls of water to one of brandy. Let a tablespoonful of this be taken every hour, or half hour.

BRONCHITIS.

This usually commences with the symptoms of a common cold, such as running at the nose and eyes, hoarseness, tickling in the throat, soreness or pain of the chest, oppression in breathing, and pains in the limbs and body. The cough is accompanied by expectoration of watery, transparent, and pale phlegm. At first the expectoration is scanty; it becomes more abundant, thick, and opaque, varying as the disease advances or continues long. There are more or less fever and constitutional disturbance, heat of skin, quickness of pulse, loss of appetite, furred tongue, costiveness of the bowels, scantiness of urine.

TREATMENT.—Bronchitis presents different degrees of severity, and its treatment must be modified accordingly.

1. *Slight or catarrhal.*—The symptoms being little more than those of common cold, and the cough but trifling, will call for only simple diaphoretics (medicines to promote perspiration), followed by mild aperients if the bowels be costive. (See Catarrh.)

2. *Acute Bronchitis.*—The symptoms are severe from the first, and rapid in their course. Mustard-poultices should be freely applied over different parts of the chest. An emetic of ipecacuanha

should be given. The emetic may be repeated at the end of twenty-four hours, if the symptoms have not decreased in severity.

In adults of full habit, leeches should be applied on the front of the chest—from one dozen to three dozen, according to the severity of the symptoms.

Chronic bronchitis may result from neglect of the above, but is more generally quite another disease, occurring more in feeble persons past the middle age. It simulates consumption very often, and at times only the skill of the physician can distinguish between the two. In these cases it requires the same treatment as consumption.

WHOOPIING-COUGH.

This is a convulsive cough, accompanied with a shrill whoop, and returning in fits that are frequently terminated by vomiting.

The disease comes on with a slight difficulty of breathing, thirst, quick pulse, hoarseness, cough, and all the symptoms of a common cold. In the second or third week after the attack, it puts on its particular and characteristic symptoms: the expiratory motions, peculiar to coughing, are made with more rapidity and violence than usual; and, after several of these expirations thus convulsively made, a sudden and full inspiration succeeds, in which, by the air rushing through the top of the windpipe with unusual velocity, a peculiar sound is caused, which has obtained the name of whoop. When this sonorous inspiration has happened, the convulsive coughing is again renewed, and continues in the same manner as before, till a quantity of mucus is thrown up from the lungs, or the contents of the stomach are evacuated by vomiting, which generally terminates the fit; the patient is then most frequently enabled to return to the amusements he was employed in before its accession, and often expresses a desire for food; but, when the attack has been severe, it is succeeded by much fatigue, hurried breathing, and general languor and debility. After a longer or shorter continuance of the disease, the paroxysms become less severe, and at length entirely cease. In some instances it has, however, been protracted for several months, and even for a year. Its chief danger is in the fact that it induces formidable diseases of the lungs and of the brain.

TREATMENT.—Endeavor to secure the right action of the bowels, skin, and kidneys, by the use of small doses, one to three grains, of mercury and chalk, or by one to three grains of powder of ipecac., and by giving the child in its drink a few grains, every day, of the bicarbonate of potash. This part of the treatment will be more

effective if the disease is in the first, or inflammatory stage, including generally the first week or two.

Give then, as a specific against the cough, the following mixture:

Carbonate of potassa,	20 grains.
Cochineal,	10 grains.
Sugar,	1 ounce.
Water,	4 ounces.

Give a child a teaspoonful every two or three hours. This is an efficient remedy, and, if it does not cure, it is because the irritation in the pneumogastric nerve, of which whooping-cough is the consequence, is kept up by disorder of the stomach.

Use then the following:

Take of tartarized antimony, one drachm. Dissolve it in two ounces of water, and add tincture of Spanish flies, one ounce.—Mix for a lotion, a little of which is to be rubbed over the pit of the stomach, three or four times a day, till relief is obtained.

This was once a famous *nostrum*, called Struve's lotion for the whooping-cough, and is very effective in the proper cases.

The following mixture is also effective in uncomplicated cases:

Tincture of belladonna,	1 drachm.
Paregoric,	1½ drachms.
Compound tincture of bark,	5 drachms.
Syrup of tolu,	2 ounces.

A teaspoonful to be given three times a day to a child from six to ten years old.

ASTHMA.

Difficulty of breathing, occurring in paroxysms, most frequently in the evening or about midnight, attended with a wheezing noise, great anxiety, and spasmodic impediment to the free admission of air into the lungs, are the symptoms of this disease. The countenance, at first pale, becomes flushed; the eyes prominent; the pulse weak, irregular, and frequent. There is often a feeling of impending suffocation. The attack may pass off entirely after some hours, or the difficulty of breathing may continue in a less degree for several days, attended with a distressing dry cough. The paroxysm is prone to return, at uncertain intervals. Each paroxysm generally subsides with cough and expectoration of tough mucus, the cough becoming looser as the paroxysm subsides.

DISTINCTIVE SYMPTOMS.—Spasmodic affections of the larynx, acute bronchitis, angina pectoris, and dropsy of the chest, may give

rise to symptoms, which might be mistaken for those of asthma, more especially in those attacks which have a spasmodic character.

Spasmodic affections of the larynx are attended with a peculiarly harsh noise, very different from the wheezing of asthma. The dread of suffocation is also more urgent than in asthma.

In acute bronchitis there is inflammatory fever, with fuller pulse; expectoration from the commencement of the attack; and the difficulty of breathing is less urgent and more constant.

In angina pectoris the character of the pain, and its seat in the region of the heart, with the general circumstances of the attack, distinguish it from asthma.

Dropsy of the chest may generally be distinguished by its being the consequence of long-standing disease, and by its being accompanied by dropsy of other parts.

TREATMENT.—The first object is to shorten or relieve the fit; the next, to prevent its return by appropriate treatment in the interval.

The *exciting* causes are, violent mental emotions, sudden exposure to cold, over-exertion of the organs of voice, the inhalation of irritating or dusty particles, as in various arts; and these causes should be kept in view in the treatment, since, by finding the origin of the particular fit, there is often some circumstance pointed out for facilitating relief.

1. *During the Paroxysm.*—Apply warm and stimulating substances to the surface of the chest; either mustard-plasters or flannels wrung out of boiling water, and then sprinkled over with spirits of turpentine, and applied hot to the surface of the chest, being renewed as they get cool, until the skin is thoroughly reddened. At the same time the feet should be placed in hot water with mustard.

An emetic of ipecacuanha should be given; from twenty to thirty grains of the powder in warm water, vomiting being promoted by draughts of warm water. When its action has subsided, the following mixture should be taken at regular intervals of three or four hours:

Paregoric,	. . . . .	4 drachms.
Sulphuric ether,	. . . . .	2 drachms.
Spirits of camphor,	. . . . .	$\frac{1}{2}$ drachm.
Tincture of asafetida,	. . . . .	2 drachms.
Water,	. . . . .	6 ounces.

Two tablespoonfuls for a dose.

In many persons, strong coffee will abate the symptoms more readily than any other article. In others, stramonium—the common stink-weed—is very effective. The patient should smoke cigars made with it, inhaling the vapor.

The age, strength, etc., of the patient must be particularly borne in mind in the selection of remedies for asthma. In the aged or feeble, ammonia, ether, etc., should be administered. Although in the younger and fuller-habited patients stimulants and antispasmodics may be given, they should be used more sparingly.

Much benefit is often derived, during the paroxysm, from inhaling the vapors of camphor, ether, and balsam of tolu, with the steam of water.

In the attempt to prevent future paroxysms by curing the state of the organs on which the disease depends, the history of the case and the character of the paroxysms must be considered.

There are three distinct and principal causes or sources of this disease, viz.: 1. *Dry cough*; 2. *Organic disease of the heart, or large blood-vessels*; 3. *Disorder of the nervous influence simply*.

1. By *dry cough* is meant an habitual thickening or congestion in some part or other of the mucous membrane of the lungs. It is particularly remarkable in the smaller branches of the bronchia, or air-passages, and it is reasonable to suppose that, if this swelling and thickening takes place beyond a certain degree and extent, it will obstruct the passage of the air, more or less completely, and thus give rise to asthma.

2. Organic disease of the heart, or large blood-vessels, gives rise to asthma, by causing an extension of disease to the lungs, and by occasioning an irregularity in the transmission of blood through them.

3. In some instances of asthma there exists no sign whatever of vascular congestion or thickening, or of any other organic lesion; and then we can attribute it only to disorder of the nervous influence simply. The case is purely one of spasm affecting the air-tubes.

It is commonly divided into two species, the dry, spasmodic, or nervous asthma; and the humid or habitual asthma. In the former, the fit is sudden, violent, and of short duration; the constriction on the chest is very hard and spasmodic; the cough slight, and the expectoration scanty, and only appearing toward the close of the fit. In the second species, or habitual asthma, the paroxysm is gradual and protracted; the constriction of the chest is heavy and laborious; the cough severe, and more or less constant; the expectoration commencing early, soon becoming copious, and affording great relief. The spasmodic asthma is the less frequent of the two forms.

In the spasmodic cases the treatment must be directed to improving the health of the nervous system, by tonics, cold bathing, and proper regulation of all the functions.

Nothing is more likely to confirm this form of asthma than con-

finement to the sick-room; on the contrary, the tepid salt-water shower-bath, cooled down by degrees, until it can be taken quite cold, should be used every morning, in all seasons, immediately on getting out of bed, and be followed by brisk friction, with hair gloves, over the whole of the body. Exercise in the open air should be taken, in every kind of weather, and the best means, both medicinal and dietetical, adopted, to augment the tone and vigor of the system. The diet should be moderate in quantity, and of a dry kind; the bed of the invalid ought to be a firm mattress, the coverings light, and there should be no bed-curtains. Self-indulgence in all forms must be combated by the asthmatic, before any hope of cure, or even temporary relief, can be expected.

In the form depending on heart-disease, we can only do service by keeping the heart quiet with sedatives, such as the wild-cherry bark.

In asthma dependent on disease of the lungs and bronchial tubes, this disease is a thickening of the mucous membrane, and must be treated by patient persistence in an alterative course. Sulphur-baths, and the use of the water of a sulphur-spring, are often beneficial.

SORE-THROAT.

In quinsy, in addition to the pain and difficulty in swallowing, on looking into the throat the tonsils or glands on each side will be seen considerably swollen; on the outside of the throat, at the angles of the jaws, a fulness may also be felt, with tenderness on pressure. The voice is altered and thickened. As the disease advances the voice becomes more stifled, swallowing is almost impossible, breathing is impeded, and at last suffocation seems to be threatened. At length, after these symptoms have existed for several hours, or in some cases for a day or two, relief is obtained by the bursting of the tonsils, in one or both of which the inflammation has gone on to form an abscess.

In simple sore-throat the tonsils may be somewhat swollen, but not to the extent of quinsy: their surfaces will present patches of yellow lymph on a sore-looking surface with ragged edges. The difficulty of swallowing is not so great, nor is the breathing impeded.

TREATMENT.—The object is first to break up the attack by active treatment, and so prevent the formation of an abscess in the throat, and the consequent constitutional disturbance. Should the disease prove obstinate and this plan ineffectual, the next effort

must be to hasten suppuration and the discharge of the matter. Begin, therefore, in a person of full strength, with an emetic :

Powder of ipecac,	30 grains.
Tartrate of antimony and potassa,	$\frac{1}{2}$ grain.
Water,	2 ounces.

Mix, and take at one dose.

Apply also in case of an adult from ten to twenty leeches, and, if these give no relief, apply a blister at the angle of the jaw on each side. Give ten grains of blue-pill, and after it a dose of sulphate of magnesia.

Should the inflammation still hold on after this treatment has had its full effect, keep the patient on a diet of gruel, apply warm poultices at the sides of the neck constantly, and let him breathe the vapor from hot water. This will hasten the formation of the abscess, and, when that is broken, tonics only will be necessary. During the formation of the abscess, however, watch the case very closely, for some embarrassment to the breathing may occur. Should this seem imminent, open the abscess.

For simple sore-throat, it will be only necessary to give the blue-pill and purgative, and use a gargle of alum-water.

CONSUMPTION.

This is a wasting of the system from disease of the lungs due to tubercles. The formation of tubercles in the lungs may arise from various causes; where there is predisposition, the most trifling exposure to cold or damp, the least deviation from the rules of health, will frequently develop the disease; and, even where there is not, it requires but little to set it up. Among the most general of the predisposing or exciting causes, may be mentioned, in addition to the hereditary taint already spoken of, a scrofulous habit of body, a peculiar formation of the chest, compressing the space appropriated to the lungs, so that they cannot have free play; this is sometimes the result of artificial compression. Inflammation of the lungs, catarrh, syphilis, small-pox, measles, or any disease which has a tendency to impair the quality of the blood, or weaken the system, may be classed among the causes of consumption; as may certain employments which necessitate the breathing of an atmosphere loaded with impurities, causing irritation of the pulmonary passages, which is likely to extend to the lungs themselves, and initiate tubercular disease. Hair-dressers, bakers, millers, masons, bricklayers, laboratory-men, coal-heavers, chimney-sweeps, dressers of flax and hemp,

and workmen in leather-warehouses, are all especially liable to pulmonary disease. A slight cough resulting from a cold caught by sitting in a draught, or getting wet, or wearing damp linen, will if neglected often become worse, and eventually lead to consumption. So too will scrofula, with which a large proportion of the ill-fed, ill-clad, and worse-housed working-people are affected.

The symptoms of consumption, although they vary somewhat with the cause of the disease, yet have a general similarity in their character. There are at first languor and a sense of debility. On the slightest exertion the pulse becomes accelerated, and the breathing difficult; there is often a short, dry cough, which increases in strength and frequency. At first there is little or no expectoration, but gradually this comes on, and eventually becomes copious, the thick mucus being after a while streaked or tinged with blood. There are gradual emaciation of the body and loss of strength; then come night-sweats, disturbed rest, and a hectic flush, or spot on the cheek—constant thirst, and a cough which seems to gather strength, in proportion as the frame, which it racks and tears, becomes more and more attenuated. There is at first a sense of tightness on the chest; then, as the respiration becomes more labored, succeed sharp, cutting pains, particularly under the sternum, or breast-bone, and at the time of coughing; very commonly the mind partakes of the weakness of the body, and sinks into a desponding state, or has sudden alternations of hope and fear. The termination of the sad scene is sometimes brought about by the rupture of one or more of the blood-vessels of the lungs in a fit of coughing; hæmorrhage ensues, and the patient sinks exhausted.

TREATMENT.—Avoid, so far as possible, all the above-mentioned depressing agencies. Seek a genial climate, such as will permit of following healthy out-door occupation; take regular and moderate exercise; protect against exposure to extreme changes of temperature, as from heated rooms to cold, damp air, with insufficient clothing, thin shoes, etc. Shun all things which will prevent the free expansion of the lungs.

By observing these means, and by adopting a liberal, even a full diet, and using all means to improve and maintain the general health, it not very unfrequently happens that the disease becomes dormant, and a silent process of healing goes on; but it is not within the power of man, as yet, to point out the particular cases in which this shall take place; therefore the pretension to *cure* consumption is sheer quackery.

Although consumption is not proved to be contagious, it is desirable that, where a suspicion of constitutional tendency to the disease exists, the person should avoid breathing the impure air expired

by a consumptive patient, as it is unwholesome under any circumstances.

The proper treatment is that which is calculated to improve the nutrition, prevent the irregularities of the circulation, which tend to promote the tuberculous deposits, and, as far as possible, to elevate the condition of the health.

Pure air, nutritive digestible food, regular exercise, and well-arranged habits of life—these and their correlative hygienic measures stand in the first place, because they are equal or superior in power to any form of medicine, properly so called, in preventing the development of the disease.

There is one remedy infinitely superior to any other, and which stands quite in the front rank of remedies. It is cod-liver oil: it stands entirely alone as an agent in counteracting the condition which is peculiar to this disease. It is a mistaken view to regard cod-liver oil as a material which only plays the part in the body of a simple nutrient. It has other and directly therapeutic powers. There is not only an improvement of the system generally under its use, but a diminution in the amount of tubercular deposit. It promotes the dispersion, absorption, and removal of tubercle.

At the commencement, the best plan is to take a teaspoonful or two of the oil, twice or thrice a day, floating on a little tincture of ginger or orange-peel. In the course of eight or ten days, the dose may be increased to three teaspoonfuls, or a tablespoonful at a dose; and it may be taken at any time of the day the patient likes best, but the greatest distance from meals is to be preferred.

It has been claimed that many cases of this disease are curable by vomiting alone. Common salt has also been counted as a remedy, taken in quantities of half a drachm a day—the patient eating only broiled beef and mutton. This is a remedy so simple, and so accessible to all, that it need not want proof for want of trial.

Distressing symptoms must be combated as they arise. Cough is perhaps the worst of all these. Sometimes this is effectually relieved by inhalation of creosote. Put ten drops of creosote in a teapot—pour on it a pint of water, and breathe the vapor through the spout. Or use this mixture:

Syrup of wild-cherry bark,	3 ounces.
Syrup of tolu,	1 ounce.
Diluted hydrocyanic acid,	16 drops.

Half a tablespoonful is the dose, and should be taken, according to the urgency of the cough, once in two or three hours.

Sedatives are the true remedy in this cough, as of course we cannot remove the cause.

For the night-sweats give every night, for several nights together, four grains of the oxide of zinc, and two grains of the extract of hyoseyamus, made into pills; or give this pill, used in the consumption hospital at Brompton, London:

Gallic acid,	5 grains
Hydrochlorate of morphia,	$\frac{1}{2}$ grain.

To be made into two pills with gum. Take no fluid whatever for several hours before bedtime.

For the diarrhoea use astringent powders, as follows:

Subnitrate of bismuth,	1 drachm.
Powder of gum-arabic,	$\frac{1}{2}$ drachm.
Magnesia,	1 scruple.

Divide into 12 powders, of which take 1 every 4 hours.

Should the patient raise blood, ipecacuanha-wine, or powder, and Epsom salts, combined in such small doses as operate mildly on the bowels, and produce slight nausea, will prove of service. Give the following draught immediately, and, should the nausea excited by it be insufficient, or the bowels be too much acted upon, the dose of ipecacuanha may be increased, or that of the salts lessened, accordingly, since the proper manner of using this form is, to combine the medicines in such proportions as will act mildly, yet sufficiently, in the way described:

Take of ipecacuanha-wine, 1 or 2 drachms,
(Or ipecacuanha-powder, 1 or 2 grains).

Epsom salts, 1 drachm.

Infusion of cascarilla-bark, 10 drachms.

Mix for a draught; to be taken in the beginning, every second hour, and, after it has checked the bleeding, twice or thrice a day, so as to keep up a gentle action on the bowels.

In cases of emergency, where no other remedy is at hand, give a teaspoonful of common salt, and repeat it frequently.

Nitre has been strongly recommended, and is often of great value, more especially in full habits. The Italian physicians have unlimited confidence in it, and employ it in large doses, as half a drachm dissolved in cold water, repeated three or four times a day. It should not be continued longer than two or three days at a time.

If the foregoing means fail of success, which they rarely will, the superacetate of lead should be tried. It is a most powerful astringent, and may be given in this form:

Take of acetate of lead,	3 grains.
Distilled vinegar,	$\frac{1}{2}$ drachm.
Laudanum,	10 drops.
Water,	$1\frac{1}{2}$ ounces.

Mix for a draught, to be taken every two or three hours, until relief is obtained.

DISEASES OF DIGESTIVE ORGANS.

INFLAMMATION OF THE MOUTH (*Stomatitis*).

INFLAMMATORY disease of the mouth appears in several forms. There may be simple inflammation resulting from contact of hot liquids or corrosive substances; or small white inflammatory ulcers, indicative of derangement of the system; or gangrenous and mercurial sore-mouth, and the sore-mouth of scurvy.

For the simple inflammation, use ice and iced demulcents—as gum-water and flaxseed tea. The sore-mouth of scurvy will yield to the treatment of that disease. For other forms of sore-mouth, chlorate of potassa may be almost looked upon as a specific. Give it freely in adults, and an infant may take from one to five grains, dissolved in water.

CANKER SORE-MOUTH (*Cancrum Oris*).

This is a gangrenous inflammation which chiefly affects the cheeks and gums of children of a weakly, scrofulous habit, with constitutions debilitated by impure air, want of wholesome food, and all the influences of poverty and wretchedness which surround so many of the poorer classes. Sometimes, however, it originates in other classes from the use of mercury. Very frequently the disease shows itself soon after measles, scarlet fever, or other acute inflammatory affections. Its first symptom is usually a hard red spot on the cheek, which spreads and opens into a shallow ulcer on the inside, discharging matter of a peculiarly offensive character. As the disease progresses, the cheek swells, the breath becomes fetid, there is a great flow of saliva, which is often tinged with blood; there is mortification of the surrounding parts, including the gums, the teeth drop out, typhoid symptoms show themselves, and, finally, the

patient sinks exhausted, death coming like a happy release from its sufferings. This is the usual course, if early efforts are not made to arrest the progress of the disease. As soon as the red spot in the cheek gives warning of its commencement, the constitution should be strengthened with good, nourishing diet, such as beef-tea, milk, and eggs, if the stomach will bear them; wine, if there is extreme debility and no great amount of fever. Quinine, in half-grain doses, three times a day, in infusion of gentian, or decoction of bark, may be given, or some preparation of iron with a warm stomachic. The following mixture is perhaps as good as any:

Wine of iron,	2 drachms.
Compound tincture of cardamoms, or of valerian, . . .	2 drachms.

Made up to 8 ounces with cinnamon or mint water; one or two table-spoonfuls twice or thrice a day.

Change of air, sea-bathing, and any thing which is likely to invigorate the constitution, should also be tried. Chlorate of potash, one drachm, with twenty drops of muriatic acid, in six ounces of water sweetened with a little syrup of orange-peel, is a pleasant and serviceable mixture; it may be given to a child six years of age, a tablespoonful about every four hours. For local treatment, lunar caustic, or sulphate of copper, rubbed along the edges of the wound, is recommended. The mouth should be frequently washed with a lotion made of chloride of soda and water, in the proportion of two drachms of the former to half a pint of the latter; or it may be one drachm of chloric ether to the same quantity. By this means the unpleasant fœtor is diminished so as to be endurable. Canker may be produced by the contact of copper or brass with the inside of the mouth. It is very often attributable to mercury.

INFLAMMATION OF THE STOMACH (*Gastritis*).

Burning pain at the pit of the stomach, increased on swallowing; rejection of every thing swallowed; hiccough, with oppression and dejection of mind, and high fever, are the *symptoms* denoting this disease. The pain is extremely acute, but is not always confined exactly to the region of the stomach, for it sometimes extends so low as the false ribs, and often shoots to the back. It is always much increased by even the slightest external pressure, and the vomiting is a more constant symptom than the hiccough. The pulse is frequent, small, contracted, hard, and sometimes intermitting. The thirst is urgent, and the bowels costive. The depression of strength is more sudden and general than in any other inflammation. The patient complains of anxiety and anguish referred to the pit of the stomach, and actual fainting sometimes occurs.

The *causes* are generally abuses of the organ—as indulgence in use of stimulants, gluttony, etc. There is, perhaps, no cause of this disease so common as suddenly checking the perspiration by drinking cold fluids.

Spasm of the stomach is *distinguished* from inflammation by its being unattended with the sudden sinking of strength above noticed, by the pulse being natural, and by there being little or no increase of pain on receiving any thing into the stomach, or on pressure.

If the prostration is not too great, apply leeches to the region of the stomach, or apply mustard-poultices. Keep the patient absolutely quiet (in bed), and avoid all irritation of the organ. Give no medicine but a teaspoonful of lime-water mixed with a teaspoonful of milk, once in three hours; or give *mindererus* spirit at the same interval. Should the bowels not be moved for several days, use an injection. It may also be necessary to support the patient by injections of beef-tea and wine.

INDIGESTION, OR DYSPEPSIA.

Indigestion is a disorder of the stomach and small intestines, the most striking symptoms of which are, difficult digestion of the food, sense of oppression or uneasiness after eating, capricious and deficient appetite, and costiveness. It is essentially a debility of the stomach and smaller bowels, though the weakness and disorder of function frequently extend to the liver, pancreas, and other organs associated in the perfect digestion of the food. The difficulty occurs occasionally, and may result from any disturbance of the system.

When the same state is chronic or continual, it is called *dyspepsia*. There is then always a sense of distention or oppression after eating; acrid eructations; constipation and uneasiness of the bowels, sometimes looseness, furred tongue, impaired appetite and strength, flatulency, discolored stools, they being either green, black, or much too light; nausea, headache, sometimes bilious vomiting, palpitation of the heart, pain in the pit of the stomach, and toward the right side; sallowness of complexion, and depression of spirits. The whole of these symptoms, however, are not always present; but, under whatever form, and from whatever cause the disease occurs, there is a considerable degree of general languor and debility, exercise or exertion of any kind soon fatigues; the pulse is weak, the sleep disturbed, the limbs are cold, or rendered so on slight occasions; and a sense of distention and oppression, acrid eruc-

tations, nausea, headache, constipation, pain in the pit of the stomach, and sallowness of complexion, are pretty constantly present.

Frequently there is a good deal of general feverish heat, flushing of the face, dryness in the mouth, weakness of the knees, and a dry, scurfy state of the general surface of the body. Different organs are at fault in different manifestations of this disease. Dyspepsia may result from disorder of the liver, disorder of the stomach, or disorder of the bowels; aside from some remoter causes of occasional occurrence, these are generally the starting-points. The first and most important step to be taken in the cure is, to remove such habits and pursuits as may have given rise to the disease, and continue to aggravate it: until this has been effected, remedies will be found of little avail. If the patient leads a fashionable life, it will be necessary for him to forsake the haunts and habits of dissipation; to leave the crowded city; to shun luxurious tables, indolence, and late hours; and to retrace the footsteps by which he has deviated from simple nature, and to court the country, pure air, active exercise, early rising, simple diet, the society of a few select friends, and pleasing occupations. The man of severe study must in a great measure lay aside his books; the fagging tradesman or merchant will find it indispensably necessary to enjoy relaxation; the hard drinker must greatly diminish his potations, especially of ardent spirits; and all dyspeptics must take exercise in the open air freely, rise early, seek cheerful society, and carefully observe a moderate and correct diet.

1. The drinker must relinquish his potations, because they derange the action of his liver.

2. The eater of great dinners must go to plain fare, because his luxurious diet tempts the palate, so that his stomach is broken down, like an omnibus-horse, by too much labor.

3. The lawyer or shopkeeper must remit confining occupation, because it breaks down the energy of the nervous system, and enfeebles the action of the stomach and the bowels.

As to medicine, let it be kept in mind that, whatever plan is adopted, much depends on the gentleness of the effect produced, the morbid condition being only removable by a slight effect, regularly kept up for a considerable length of time. All powerful means, which are necessarily transitory, because they would soon destroy the patient if they were continued, not only fail to cure, but very often aggravate the disease. It is, therefore, of the greatest importance that the patient should remember it is by the most gentle and frequently-repeated impressions that the organs are solicited to

resume their healthy action in all protracted cases, more especially if considerable hardness of the pulse be present.

In the vast majority of cases, more especially with women, the bowels require the first attention. In a great many instances, where there is more or less constipation, the difficulty is overcome by simply directing our thoughts to the condition. In others, warming the feet will cause a natural evacuation of the bowels—in others, again, rubbing the belly will effect it, and many know some article of diet that proves laxative to them. It is better to adopt any of these means than to take medicine. Should the case, however, resist all such means, medicine must be used. Either of the following preparations will be effective :

Tincture of rhubarb,	1 ounce.
Tincture of aloes,	1 ounce.
Tincture of ginger,	2 drachms.

Mix, and take a teaspoonful every day.

Resin of podophyllum,	2 grains.
Powder of rhubarb,	8 grains.

Mix, and make 8 pills, of which take one a day.

At the same time take, once a week, five grains of the powder of mercury and chalk. Should the stools continue dark and offensive, this may be taken oftener—once in three days. Where there is water-brash, with a sour taste in the mouth, take daily a teaspoonful of lime-water—or use the following :

Sulphite of soda,	1 drachm.
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Make 12 powders, of which one is a dose.

If the pain comes on immediately after eating and is persistent, take one of the powders below every day :

Subnitrate of bismuth,	2 drachms.
Sugar,	1 drachm.
Powder of ipecac.,	12 grains.

Mix, and make 12 powders.

Bitters may be taken at the same time. The best are chamomile, gentian, columba, and chiretta. In making an infusion or a tincture of any of these, add so much of the tincture of nux-vomica as will give three drops to every dose.

Should there be, with the inability to digest, a good appetite for plain food, give iron : either the carbonate of iron in Valet's mass, from three to twelve grains a day ; or the tartrate of iron and potassa about six grains a day, or the tincture of the chloride of iron, in doses of from ten to thirty drops, three times a day. If there are weak lungs and any tendency to tubercles, take no iron ;

and, if iron gives headache, trust the case entirely to the vegetable tonics.

As an auxiliary remedy, the cold bath merits much attention, or, if preferred, cold sponging may be substituted for the cold bath. The whole surface of the body should be sponged regularly every morning with cold water, the patient rubbing himself dry after it with a coarse towel. The power of daily active exercise in the open air in curing dyspepsia is very great, indeed such as would appear to the majority of persons almost incredible; and, therefore, it cannot be too much insisted upon by the physician, as an indispensable requisite to insure perfect freedom from this complaint. Many lay great stress upon attention to diet, as necessary in the treatment of this and other chronic disease, and so it is; but experience proves that exercise and cold water are the most essential branches of the regimen. Exercise is not so strenuously recommended as it ought to be, or its virtues so fully known as they deserve. Yet it is not good in all cases. The very feeble must take it carefully, and in many, absolute rest is of the first importance. Overworked women, particularly, will often find some weeks or months of recreation worth all other remedies. Cheerful company and lively conversation, with proper clothing, are also subjects of importance. The feet and chest should be kept warm.

GASTRALGIA—CARDIALGIA—CÆLIAC NEURALGIA.

SYMPTOMS.—Paroxysms of pain, more or less severe, and of variable duration, generally confined strictly to the region of the stomach, and ordinarily without any of the more usual symptoms of gastric derangement, and without fever. Sometimes the pain is rather an oppressive or tensive uneasiness, but oftener it has the character and severity of the worst neuralgia, and in its effects on the sufferer seems to threaten immediate dissolution. It is not altogether without danger, but is not often fatal. Fatal cases only occur when this disease coincides with some other severe disease of the stomach that is chronic. Gastralgia is commonly a complication of some other disease, but occurs alone mainly in systems enfeebled by sedentary occupations, attention to business or study, or by excesses. It is peculiar to women, and to men of the less robust type.

TREATMENT.—This must depend upon the cause of the disease, and must endeavor, first, to allay the immediate paroxysm, next to strengthen the system against recurrence. Free application of chloroform to the surface immediately over the seat of pain will perhaps be required when the pain is exceedingly severe. Chloro-

form and tincture of aconite in equal parts may be applied in the same way, sometimes with more effect. At the same time, in the severe paroxysms, a tablespoonful of warm brandy, with twenty drops of laudanum in it for an adult, may be given. Should the pain be less severe, either the brandy or the laudanum alone will generally suffice.

Exposure to cold or wet will induce this disease; so will the marsh miasm; and, with rheumatism or gout, it is pretty sure to occur sooner or later. Diseases of the uterus cause it—in thickening, ulceration, or chronic inflammation of the stomach, it will result from the contact of alimentary substances, and even medicines. In very irritable stomachs in dyspeptic persons, the ingestion of a glass of cold water, of wine, or a dish of ice-cream, will bring on frightful paroxysms. In instances like any of these, the permanent cure will require strict attention to the primary disease. Guard against exposure, against imprudence in eating and drinking, neutralize the miasm, attend to the several disorders of the system, and you will do the best that can be done against the gastralgia. If the disease is not thus obviously dependent upon some other, it must be treated with tonics. Bismuth has been used very freely, and almost as a specific, in the following mixtures:

Subnitrate of bismuth,	20 grains.
Sugar,	20 grains.

This dose may be taken with syrup. Another more composite formula meets other than the merely nervous indications.

Subnitrate of bismuth,	60 grains.
Extract of opium,	10 grains.
Powder of ipecac.,	10 grains.
Magnesia,	5 grains.
Sugar,	5 grains.
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	90 grains.

Make 20 powders, of which take one every hour.

This may be followed by the use of the carbonate-of-iron pills, or the tincture of chloride of iron in ten-drop doses, three or four times a day, especial attention being given to having the bowels freely moved every day.

GASTRIC ULCER.

Ulcer of the stomach occurs more frequently in women than in men, and in the poor than in the rich. It may prove fatal, by perforating the stomach and causing peritonitis, or by opening a vessel, and so leading to sudden hæmorrhage.

The symptoms are those of derangement of the stomach gen-

erally, but the prostration is peculiarly marked. The pain over the stomach is different from the pain of simple dyspepsia. In dyspepsia, the pain is caused by the food taken. In ulcer, the pain is constant, and is made worse by food. If the ulcer perforate, the sudden prostration amounts to collapse, from which the patient does not rally.

TREATMENT.—Opium, astringents, and demulcents, are the effective remedies. Give Dover's powder, ten grains, every five hours, and either kino or bismuth in powder, and the tincture of catechu in gum-arabic mixture. Irritating applications over the stomach are sometimes useful.

Be very careful in regard to food, taking only small quantities at a time of bland substances, as arrow-root in milk. In severe cases, give no food by the stomach, but support entirely by injections of beef-tea.

CANCER OF THE STOMACH.

The exciting causes of this disease are blows, particular occupations in which the stomach suffers by constant pressure, intemperance, and great mental depression. It scarcely ever occurs in the young. Hereditary influence is less marked in this than in other forms of cancer.

Pain, sometimes severe, and becoming worse with a corresponding tenderness on pressure, is felt at the right side of the epigastrium, at the margin of the false ribs. The pain is worse when food is taken. Food and mucus, and mixed blood and mucus—"coffee-grounds"—are vomited. There are dyspepsia, fetid breath, and emaciation, and this latter may make perceptible a tumor at the seat of pain. Discovery of this tumor will render it in the highest degree probable, but not absolutely certain, that the disease is cancer.

The disease is inevitably fatal. Nothing can be done but to fight off the slow starvation by highly-nutritious food, and soothe the pain by anodynes. Give beef-tea, cream, etc., as ordinary food cannot be digested, and opium in the form of watery extract, or the solution of the sulphate of morphine. Generally a year of misery ends the case, and two years is perhaps the extreme possible limit of life.

VOMITING BLOOD.

Blood raised in considerable quantities, not frothy, of a dark color, and especially if mingled with food, is from the stomach. Blood may be vomited where there is ulcer of the stomach, in scurvy, in cancer of the stomach, or from aneurism of a small ves-

sel. If chronic, that is, occurring from time to time, there is danger, as it indicates some persistent disease of the abdominal viscera.

Treat by abstinence from food, perfect rest in the horizontal position, cold to the epigastrium, and cold drinks, with astringents—ice, gallic acid.

Gallic acid, 8 grains.

Dover's powder, 5 grains.

Make a powder, to be taken once in eight hours.

Or, take fifteen to twenty drops, at intervals of a few hours, of the tincture of chloride of iron.

In the form that recurs, give tonics regularly :

Sulphate of quinine, 12 grains.

Sulphate of iron, 12 grains.

Water, 8 ounces.

Sulphuric acid to make solution. Take a tablespoonful twice a day.

Give cream, raw eggs, cod-liver oil.

CONGESTION AND INFLAMMATION OF THE LIVER.

Having so important a duty to perform in the animal economy, it is of the utmost consequence that the liver should be kept free from disturbing agencies, so that it may be in a proper condition for the discharge of its functions. The evil to which it is most liable is a disturbance of its circulation, causing either active or passive congestion, both of which are by no means uncommon conditions of the organ; in the former case, there will be an increase in the flow of bile; in the latter case, probably a decrease, or an altered state of the secretion. Congestion is the first step toward inflammation, and, if not remedied in time, leads to that disease.

Active congestion of the liver may be a consequence of an irritated state of its tissues, owing, probably, to the retention in the blood of the materials which ought to have been taken up by the kidneys, the skin, or some other excretory organ; or it may be owing to the pressure of too much carbonaceous matter in the food; or there may be some local cause, some organic disease of the liver itself. Any one of these will tend to an excessive secretion of bile, and cause what are called bilious disorders.

Passive congestion of the liver is usually the result of some mechanical impediment to the due supply of blood to the organ, or to its return from thence; the mischief may be an impeded action of the heart, or a defective operation of the functions of the lungs; or it may be caused by continued pressure upon the seat of the liver, such as results from leaning at a desk, or remaining in a stooping

position; persons of sedentary habits are likely to be affected in this way. It may be merely what is called "a sluggish liver." There is a diminution in the quantity of the bile, but no alteration of its quality; in the more severe forms of passive congestion, however, the bile, after its secretion has been suspended for a time, becomes acrid and plentiful, causing, when it passes into the intestines, much constitutional disturbance.

The symptoms of congestion are generally great uneasiness in the right side, and a dull, heavy pain near to the shoulder-blade of that side; if *active*, as before observed, the bile will be plentiful, coloring the evacuations, and producing often a bitter taste in the mouth, and leading sometimes to *jaundice* (which see); if *passive*, there are also the same uneasiness and pain in the region of the liver, with a diminished flow of bile, or a changed condition of it, as before described; and after a while there is probably *acute inflammation* set up, which generally seizes on the substance of the liver, and involves the whole or only a part of it; most commonly the former is the case.

In the acute stage of inflammation there is pain in the right side, which is increased on pressure, or when a deep breath is drawn; there is usually, too, quick breathing, often a cough, but not always either of these. Nearly always there is pain in the right shoulder, and more or less of yellowness of the eyes, and, indeed, of the whole skin; occasionally absolute jaundice; the urine is high colored, and the fæces either pale and clayey, or tinged with greenish yellow bile; vomiting, too, is sometimes a symptom.

Treatment of acute liver inflammation should be active measures of depletion to prevent the formation of abscesses. If the system will bear it, there should be cupping or leeching over the seat of the organ, to be followed up with hot bran-poultices, and afterward by a blister, the latter to be several times repeated if required. The bowels should be freely opened, and the system reduced by calomel combined with colocynth, or some other active purgative, to be followed by a saline aperient mixture, as follows:

Epsom salts,	6 drachms.
Liquor of acetate of ammonia,	1 ounce.
Tartrate of potash,	2 grains.
Wine of colchicum,	1 drachm.
Camphor-mixture sufficient to make six ounces; one ounce to be taken every four hours.	

The calomel to be kept up for some time in small doses, combined with opium if the pain is violent. When there is reason to believe that suppuration has taken place, the treatment must be

altered, and nourishing food and tonics given with mineral acids, such as the muriatic, with gentian. In chronic inflammation the pains may be relieved by bleeding, dry cupping, repeated blisters, and small doses of mercury; gray powder with rhubarb, or blue pill, will be best. Epsom salts, or mineral waters, should be taken regularly, with moderate exercise. A light but nourishing diet, and, if possible, change of air and scene.

CIRRHOSIS (*Hobnailed Liver*).

This is an inflammation of the fibrous connective tissue of the liver, causing it to contract. As the resistance of the substance of the liver to this contraction makes it unequal, there are nodules left all over the surface, which may sometimes be felt on the outside in thin persons.

The symptoms are obscure. There are pain in the right side—indigestion, constipation, occasional feverishness—dry and rough skin—debility, loss of flesh, jaundice, and dropsy, that begins in the belly.

TREATMENT.—Abstain from all alcoholic liquors and stimulating drinks or dishes. Take plain animal food, and purge freely with sulphate of soda. Use quinine and iodide of iron in doses of one grain each. The disease is very intractable, and will probably not be suspected till it has made such progress as to be incurable.

Treat the dropsy as directed in the article on that subject.

BILIARY DERANGEMENTS.

Bilious Disorders; Bilious Attacks; Sick Headache; Bowel Complaint; Bilious Diarrhœa; Functional Derangements of the Liver.

SYMPTOMS.—1. *Those of Diminished Secretion of Bile.*—Irregular or costive state of the bowels, the evacuations being insufficiently colored with bile; flatulency, and various dyspeptic symptoms; furred tongue; nausea; pain under right shoulder-blade; headache, etc.; dark specks floating before the eyes; sallow or muddy complexion; lowness of spirits; piles.

2. *Of Excessive Secretion.*—Copious fluid evacuations, highly colored with bile, often preceded by griping and by nausea, sometimes attended with vomiting; pulse accelerated.

CAUSES.—Residence in hot climates; exposure to extremes or vicissitudes of weather; the use of full, rich diet; spirituous and fermented liquors in excess; misuse of mercurial medicines; neglect of the intestinal evacuations; neglect of the cutaneous functions;

indolence and sedentary occupations ; mental emotions ; depressing passions ; disease of other organs, as long-continued dyspepsia, diarrhoea, or dysentery.

TREATMENT.—In the first of the two forms above named, a moderate dose of a mercurial medicine, e. g., five grains of blue pill, followed by a warm aperient, will probably suffice to relieve the present symptoms. The treatment subsequently will consist in such diet, regimen, etc., as shall prevent the operation of the causes.

Extract or decoction of taraxacum (dandelion) is a valuable remedy for disorders of the liver.

Infants and young children are liable to indisposition from diminished secretion of bile. The stomach becomes disordered, sickness occurs, the bowels are sluggish or irregular, and the evacuations pale or white. The child is fretful or weak. Sometimes profuse action of the bowels attends this condition of the liver.

Two or three grains of gray powder (mercury with chalk), followed, after a few hours, by rhubarb or castor-oil, will generally suffice to remedy this disorder.

It may, however, be requisite to repeat the gray powder every second or third night for a few turns. It is not then advisable to continue the purgative after each dose.

The diet, at the same time, should be nutritious, but plain, e. g., beef-tea, with light farinaceous puddings, milk, etc.

(For the treatment of the second sort of biliary disorder, *see* Diarrhoea.)

JAUNDICE.

This is rather a symptom of several diseases of the liver than properly a disease in itself. What it commonly indicates is suppression of the flow of bile from the liver and gall-bladder into the intestines. This is the result of some inflammatory or nervous disturbance that closes up the bile-ducts, and the bile, not finding its natural outlet, accumulates, and, finally, as no more is secreted, the biliary coloring matter remains in the blood, and thus communicates its peculiar hue to the skin, the whites of the eyes, the urine, etc.

The proper remedies are such as will remove the cause of obstruction, and stimulate the flow : active purgatives, as resin of podophyllum, in two or three grain doses ; rhubarb, senna, or aloes ; and the sulphate of soda, taken freely.

GALL-STONES (*Hepatic Colic*).

Concretions form in the liver—in the ducts of the liver, and in the gall-bladder—more frequently in the latter. When a stone of any size passes into the duct that leads from this latter to the intestine, there is the most excruciating pain, and great constitutional disturbances, rigors, sweating, intense agony. If the stone recede, or pass on, the symptoms cease; but, if it remain impacted, as it is apt to, at the junction of the duct from the liver, it will wear the person out by the combination of the agony with the results of complete obstruction of biliary ducts.

There is no treatment but to soothe the pain; give opium in as full doses as the system will bear, from two to ten grains. If it affords no relief, give chloroform, but carefully.

INFLAMMATION OF THE BOWELS AND PERITONÆUM.

SYMPTOMS.—Pain; extreme tenderness on pressure of the abdomen, and in the course of the intestines; distention and sense of heat in the abdomen; the knees drawn up, and bent on the body; vomiting of bilious matter; skin harsh and dry; pulse quick and hard; urine scanty and high-colored; thirst, loss of appetite; tongue white and clammy, or dark brown and furred in its centre, but red at its point and edges; general debility and prostration of strength. At first the bowels may be obstinately costive; they afterward become relaxed, the evacuations being pale, yeasty, slimy, bloody, or offensive, dark and lumpy. There is frequent straining at stool, without free action of the bowels.

Distinctive Characters.—It may be distinguished from colic by the presence of febrile symptoms, the more rapid pulse, and the pain of the abdomen being increased by pressure, whereas pressure relieves the pain of colic.

CAUSES—Predisposing.—Sudden changes of weather; damp and unhealthy situations; marshy districts in hot climates; debility; errors of diet as to quality and quantity; suppression of perspiration by exposure to cold or damp; intemperance; inattention to the condition of the bowels; the injudicious use of strong purgative medicines. Many poisons act fatally by producing inflammation of the bowels, as do also extensive burns and scalds.

TREATMENT.—From eight to twenty leeches should be applied over the painful part, according to the age of the patient and the severity of the attack. The bleeding may be encouraged by warm fomentations, or large warm bread-and-water or bran poultice.

Calomel and opium, to be given every two, four, or six hours. If the attack be not very severe, or if the patient be young or delicate, Dover's powder and gray powder will be preferable. Let it be borne in mind that the cure depends more on the opium than on the calomel.

Give a grain of opium once in four hours, but give the calomel less freely—one or two grains a day. Let them be combined with tartar-emetic, one quarter grain for each grain of calomel.

DIARRHŒA.

Hot weather, by the languor it induces, prevents the regular action of the liver. Stimulants of every sort, by causing a too great activity, cause also, by Nature's law of compensation, a subsequent sluggishness. Torpidity of the liver is a consequence of innumerable little accidents in the digestive system. Any of these interferences with the regular action of the liver, impeding the flow of blood through it from the intestines, the result is an accumulation of blood in the vessels that serve the whole intestinal surface; and, as the obstruction continues and the vessels become more and more loaded, the pressure on their walls is finally relieved, of necessity, by a discharge of serum into the intestine. The blood yields its watery part, which, flowing into the intestine in greater or less quantity, causes diarrhœa. Diarrhœa, as thus caused, may be a simple, painless flow of water washing out the contents of the intestine, and making two or three or half a dozen liquid passages, or it may be a persistent depletion, reducing the system to an alarming degree.

But diarrhœa originates also in other ways, especially by any irritation in the intestines themselves. One of the commonest causes of irritation is the presence of undigested food. If the stomach is feeble or out of order, or indisposed from any reason to perform its ordinary duties, and a meal is taken, this meal is not digested, and its substance passes into the intestine much as it was taken. Here it is a foreign substance, and disturbs accordingly, exciting free secretion, which washes out the offending material. Another source of diarrhœa is the reciprocal action between the skin and the intestinal mucous membrane, by which the application of cold to the surface of the body induces an undue activity of the bowels. Another very common cause of diarrhœa is constipation. This may result from carelessness in regard to the evacuation of the bowels, or from a flaccid condition of the bowels (*see* Constipation). The fecal substance remaining in the intestine irritates, and thus

causes diarrhœa. Many persons never have their bowels moved in any other way but by a diarrhœa thus caused, and alternate through their lives in periods of one or the other of these unnatural conditions. Diarrhœa is also a symptom in some grave diseases, especially in fever. In these several cases the stools will vary in hue from light yellow to green, or brown, and may be quite colorless and slimy.

It is important to keep in mind the several causes of diarrhœa, and to endeavor to associate each case with its cause, for, according as it depends upon one or another of the several causes, the treatment must vary.

In the painless diarrhœa that comes in hot, oppressive weather, and which cannot be traced to any offending article of food, the intestinal circulation is at fault in the manner indicated above. This may induce two or three liquid passages, and be heard of no more, and it is well to wait for this possible result; but, if the derangement persists, it is to be treated by any means that will naturally stimulate the abdominal organs, especially the liver. Men in the army, prostrate with this diarrhœa, have been cured by the sudden necessity to mount their horses and meet the enemy. So men in our cities sometimes leave home in the morning to answer urgent requirements of business, hardly believing that they can get through the day; but the enforced activity cures them. As, however, the idea of taking exercise while suffering from a diarrhœa is so contrary to common prejudice that many cannot be induced to believe it right, medicines will be necessary. The simplest are the best.

If a person is in the habit of taking mercurials, and believes that his liver cannot be stimulated in any other way, he may take from two to five grains of calomel, according to habit and strength, and take after it a small dose—half an ounce—of castor-oil; but ten grains of rhubarb in powder, without mercurials, will be quite as effective in the great majority of cases, and less likely to make an undue impression. If rhubarb gripes, from twenty to forty drops of paregoric may be added.

In endeavoring to avoid the use of medicines in these cases, it should be remembered that even good things may be overdone. We may go too far with this care, and in certain seasons the flow of water from the bowels, beginning as we have indicated, may run into a disease of a choleraic character. Never let the discharges pass beyond control. If the frequency of the passages or the quantity of water evacuated is such as to alarm the patient, that alarm itself may lead to greater evil. Check the discharge, therefore, with the following mixture:

Tincture of opium,	1 drachm.
Tincture of capsicum,	1 drachm.
Camphor-water,	1 drachm.

Give, according to age, from ten to thirty drops after each passage. An ordinary teaspoonful of this mixture would contain twenty drops of laudanum, and this would be a pretty full dose for a grown person. Do not let a panic eagerness to arrest the diarrhœa hurry you into a too free use of the narcotic.

Diarrhœa resulting from the action of cold on the surface, as in sudden changes of temperature, or with wet feet, must be treated by restoring the perspiration. It is best to go to bed, or to be wrapped in a blanket; have warm applications made to the whole surface of the abdomen, as flannels heated at the fire, and take warm, cordial, diaphoretic draughts, which may vary with the taste, from ginger-tea to wine or brandy punch. If any medicine is taken to act on the bowels in these cases, it should be castor-oil only.

Diarrhœa, induced by the presence in the intestine of unchanged alimentary matters, may result from the indigestion of a single meal, or from dyspepsia. If it is the former, it will cure itself, or the cure may be assisted by any medicine that gives two or three easy passages; a dose of two or three of the compound cathartic pills will suffice. The same is true if the trouble results from an established dyspepsia; but it is then scarcely worth while to go on treating as distinct troubles every recurrence of the diarrhœa. It will come too often, and the more medicine is taken for the diarrhœa, the more firm will become the hold of its cause. We must treat the dyspepsia (which see).

Cholera morbus is an irritation of the intestines, caused by improper articles of food, and characterized by excessive pain. It is therefore essentially identical with diarrhœa, and must be treated in the same way. The vomiting is due to the fact that the excitement is transmitted upward to the stomach.

CHRONIC DIARRHŒA.

This may result from the simple derangement treated above, or it may have other causes. If a common diarrhœa is permitted to continue indefinitely, or if a person is living in such circumstances as to keep one up, or to constantly give a fresh one, as the other seems to have run its course, there is no return to the natural sequence of events in the functions of the intestine. The exceedingly delicate surface that lines the intestinal tube is kept in a constant state of irritation. It loses its strength and tone—becomes feeble

and soft. The innumerable little glands never perform their various offices; the excitement keeps up a continual hyperæmia, and, as the power of resistance passes away, all this leads to ulceration, and ulceration itself to still other troubles. Here there is such a complication of evils that it is scarcely safe to trust to remedies prescribed on general principles.

An efficient remedy is the solution of nitrate of iron, in doses of from ten to thirty drops, three times a day, with or without ten grains of powdered kino, taken in water.

DYSENTERY—BLOODY FLUX.

There is a sudden desire to empty the bowels out of the ordinary time, and this is followed by shivering; heat; thirst; flatulence; frequent inclination to action of the bowels, attended with straining, and preceded by griping; loss of appetite; nausea; vomiting; rapid pulse; urine scanty and high-colored. The evacuations become scanty, relaxed, mixed with mucus, matter, and blood. If the disease becomes chronic, emaciation and debility follow, with fever of a low or typhoid character.

It is *distinguished* from diarrhœa by the scantiness of the evacuations, the violence of the straining, and the presence of fever.

Diarrhœa is apt to become dysentery.

CAUSES—1. *Predisposing*.—Hot climate; cold and variable weather after prolonged hot and moist seasons; debilitated habit of body; deficient and unwholesome food; impure air, and fatigue.

2. *Exciting*.—Exposure to cold; damp clothes; sour or unripe fruit; tainted food; intemperance; and contagion.

Give, immediately, to an adult, thirty drops of laudanum, followed, in fifteen minutes, by one drachm of the powder of ipecac., in water. There will be profuse vomiting, and the ipecac. will move the bowels, and the patient will be better. Often one dose cures, but another may be necessary the next day.

In some cases, where the fever continues high, and the tongue foul, a dose of calomel, ten grains, may be necessary. Give opium with this in free, full doses, so as to check the passages. Give one grain once in three hours. Injections will be necessary, of starch and water. Cold water is best. Put ten or twenty grains of ipecac. in this, and as many drops of laudanum.

The horizontal posture and perfect rest must be constantly observed, and the greater the irritation the more requisite they are. The patient ought not to give way to the frequent inclination to stool, but resist it as much as possible. The stools must be imme-

diately removed from the patient's chamber, which should be freely ventilated at all times, and frequently sprinkled with vinegar. In malignant dysentery, the patient should void his motions into a vessel half full of water, to which a teaspoonful or two of the concentrated chloride of lime have been added. This removes all smell instantly, and destroys infection. In such bad cases, the diluted chloride must be sprinkled over the apartment twice a day. It is advisable also to bury the motions when the disease is malignant, as the effluvia arising from them have been known to give the disease both to men and animals, even after they have been deposited in the usual receptacle. The "earth closet" is an excellent article for the use of patients with this disease.

During convalescence, flannel should be constantly worn next the skin, and the most scrupulous attention be paid to avoid dews, damp night-air, and sudden atmospherical vicissitudes, more especially in hot or unhealthy climates; and no article of diet difficult of digestion must be touched.

After leaving off other medicines, the patient should take an infusion of calumba or quassia, with or without a little nitrous acid and opium, to give tone to the bowels, which should be continued till they have recovered their vigor.

Chronic dysentery is a consequence of protracted diarrhœa, and the only remedies are astringent tonics, of which the tincture of the chloride of iron is best. Give twenty drops three times a day.

COLIC.

This is marked by severe griping and twisting pains in the bowels; flatulency; vomiting; costiveness. The pains are intermittent, sometimes going off entirely, and are relieved by steady, firm pressure. The tongue may or may not be furred. The pulse is not usually accelerated at first, or unless the attack be severe. In some severe cases the action of the bowels becomes reversed, and vomiting of fæces takes place. This form is called *ileus*, or *iliac passion*.

DISTINCTIVE SYMPTOMS.—Colic may be mistaken for inflammation, and inflammation for colic. In inflammation of the bowels, pressure aggravates pain rather than relieves it, as in colic; the pain comes on gradually, and is more constant; the pulse is sharp and frequent; there is more or less fever. Costiveness from spasm of the bowels is often one of the first signs of inflammation of the bowels—and colic may also lead to inflammation. Nevertheless, the treatment for colic may safely be adopted when the symptoms indicate it. Hernia, or rupture, in a state of "strangulation," may be overlooked, and taken to be colic.

CAUSES.—Severe spasm of the muscular fibres of the bowels, induced by exposure to cold; costiveness; indigestible food; acid and imperfectly-fermented beverages, as wines, spirits, cider, etc.; injudicious use of purgative medicines; poisonous fungi, fish, etc.; metallic poisons, as lead; irritation of teething in children. In the *iliac passion*, or the stercoraceous colic, the movements of the intestines being reversed, a lower portion thereof sometimes slips into that above it, and causes what is called intussusception, a physical obstruction to the passage of the contents of the bowel. In children, however, this not infrequently happens, and rights itself, or exists without producing symptoms.

TREATMENT.—1. *In Common Colic from Cold or Costiveness.*—Fomentations of hot water, with turpentine; or mustard-plasters to the abdomen. If these and the medicines do not quickly give relief, a hot bath of 90°, raised gradually to 110°, should be used. For an adult, take of castor-oil one ounce, laudanum twenty to forty drops, according to the age, and severity of the pain. If need be, repeat every two hours, for three times. Assist the action of these by glysters of turpentine and castor-oil, adding, if the pain continues severe, thirty or forty drops of laudanum to each.

2. If the colic be traceable to sour beverages, unripe fruit, poisonous fish or fungi, or other indigestible food, let an emetic of mustard or ipecacuanha be taken immediately; at the same time fomentations or a hot bath may be employed; then follow up by castor-oil, as above ordered.

3. In *painters' colic*, or that from lead-poisoning, give at once thirty or forty drops of laudanum, hot bath, etc., then a mixture of Epsom salts and alum, and opium.

4. In the colic of infants and children, give warm cordial magnesian or antacid mixtures. The essence of anise-seed is a good preparation, in from one to ten drops, according to age.

N. B.—Be very careful in giving opium to young children.

WORMS.

Several kinds of worms infest the intestinal canal. Those most generally found there are the *ascarides*, small thread-worms, varying from the eighth of an inch to one and a half inches in length; they are mostly in the rectum, or last gut. The *lumbrici* are long round worms, from two to three to ten or more inches in length; they are of a yellowish-white, or brownish-red color, and are usually found in the small intestines. The *tania*, or tape-worm, occupies mostly the upper part of the intestinal tube, but is occasionally

found in every part of it. There are two sorts of *tænia*; one, the commonest, frequently grows to an enormous length (as much as thirty or forty feet), and generally comes away entire; the other passes off in one or more joints, which resemble pumpkin-seeds.

As may be expected, from the highly-organized and sensitive parts which they occupy, worms cause great constitutional derangement, resulting in all kinds of bad symptoms, more especially affecting the stomach and head; hence we have in these cases variable appetite, sometimes deficient, at others absolutely voracious; pains in the stomach, fœtid breath, nausea, headache, vertigo, and giddiness, irritation about the nose and anus; frequently cough and disturbed rest, and a disordered state of the bowels. In children we have a hard and tumid belly, with slimy stools, and sometimes convulsive fits. Occasionally in adults, as well as children, worms give rise to epileptic fits, and cause great emaciation.

An excessive use of fruit and vegetables, or sugar, or any other highly-nutritive substance, favors the generation of worms, which most frequently infest those of a relaxed habit, with weak digestive organs; the greater indulgence in sweets, and too common abstinence from salt, appear to be the main reasons why children are most troubled with them.

Worms are more common in some countries and districts than others, and it has been noticed that they are particularly so in parts where much milk and cheese are taken. Eating meat in a partially raw state, especially pork, will be pretty sure to produce them.

TREATMENT.—This must be of a tonic and strengthening character; such medicines as tend to invigorate the system are the best, and especially those which act upon the stomach and intestines; salt, preparations of iron, sulphur, and camphor, are those which may be principally depended on, in conjunction with an avoidance of vegetable and saccharine food. About one ounce of common salt dissolved in nearly half a pint of water, and taken in the morning fasting, twice a week for some little time, will generally bring away any kind of worms, if the plan is followed out, especially if a pill containing one grain of calomel and three of extract of colocynth be taken at bedtime the previous night. At the same time should be taken a strengthening mixture, composed of sulphate of iron, twelve grains; infusion of quassia, twelve ounces; tincture of ginger, two drachms. Dose, two tablespoonfuls twice a day. Or else, sulphate of iron and quinine, each twelve grains; dilute sulphuric acid, twenty-four minims; cinnamon-water, twelve ounces, dose as above.

For the tape-worm, castor-oil and spirits of turpentine are often

given; about half an ounce of the latter, and two drachms of the former, is the dose; it should be taken fasting, and may be repeated two or three times, at intervals of two or three days or so. Pomegranate-bark is a very old and useful remedy for this kind of worm; the mode of administration is to boil two ounces of the bruised bark in one and half pints of water down to a pint, the whole of which is to be taken in the course of the morning fasting, in four draughts, with intervals of half an hour between each. Should this not be effectual the first day, it may be repeated two, three, or even four times.

Another remedy for tape-worm, and perhaps more effective than any, may be made from the seed of the common pumpkin. Bruise a handful of the seeds, and steep them for some hours in a quart of water. Drink this mixture in two doses in the morning, fasting.

An effective remedy also is to take by the mouth one drachm of sulphuric ether, and in half an hour a dose of castor-oil. The ether stupefies the worm, who loses his hold, and is carried out alive by the oil before he recovers.

COSTIVENESS.

Constipation of the bowels is a fruitful source of many complaints, as dyspepsia, piles, fistula, strictures of the rectum, general debility, lowness of spirits, headaches, and various other evils. The bowels are organs so sensitive and important, that it should never be forgotten that habitual constipation necessarily produces disorder, and disorder leads to disease; and the correction of this habit, therefore, deserves far more attention from the subjects of it than it commonly obtains. The most pleasant and effectual way of correcting it is by *draughts of cold water*, diet, friction, exercise, and the occasional use of the lavement or clyster-tube, if necessary; but this I believe will be seldom requisite. It is an unwise and unsatisfactory plan for the constipated to trust chiefly or altogether to the frequent use of aperient medicine; this now and then employed is sometimes of great service, but the relief gained by cold water, a vegetable and fruit diet, friction, and the occasional injection, is more certain, permanent, and beneficial.

In point of diet, great attention should be paid in avoiding all articles that are astringent, and in indulging moderately in those which are relaxing. Generally speaking, the patient will find that excess of diet will increase the costive habit, by disordering and still further weakening the bowels. The constant use of brown instead of white bread is a measure that will frequently overcome this habit, when aperient medicine is resorted to with only partial and

unsatisfactory benefit; and if, after a time, it should lose its effect, it may be alternated with bread made of one-third or one-half rye-flour, mixed with the wheaten-flour. Barley-bread also has considerable effect in promoting a soluble state of the bowels, and so has barley-meal porridge. It is easily digested, and very wholesome. Active exercise in the open air should be freely employed, with daily friction over the region of the stomach and bowels.

Constipation is in many cases due to neglect. Persons do not attend to the first call of Nature, or they may be so excited in other pursuits, that the nerves that should give the warning are at fault. In such cases, which certainly are very numerous, the simple turning the thought to the subject, or the spending an hour, if necessary, every day at the same time in the appropriate place, will prove a complete cure.

Where all such efforts fail, use a pill composed as follows :

Resina podophyllum,	2 grains.
Powder of rhubarb,	8 grains.
Mix, and make eight pills. Take one a day.	

This is too small a dose of medicine to do any harm, even continued for some time, but it will be effective. Or those whose stomachs do not rebel at castor-oil may adopt the following plan: Take on the first day a sufficient dose of oil, say an ounce—on the next day half an ounce. Keep at this dose two or three days, and then take a quarter of an ounce, then a teaspoonful, then half a teaspoonful, and so down. Persons have by this plan been able to keep their bowels open by the daily use of a few drops of oil.

PILES.

Piles consist in a distention of the veins of the rectum, or in a relaxation of the surrounding skin and cellular substance, with an effusion of blood into it, forming small tumors, either within the anus or at its verge, or sometimes producing one tumid ring, by which it is surrounded.

In some cases, they are attended with a discharge of blood, particularly when the patient goes to stool, called the bleeding or open piles; in others there is no discharge, when they are denominated the *blind piles*. Sometimes they are situated within the gut, and obtain the name of *internal piles*, but more frequently they protrude beyond the anus.

They are sometimes preceded by a sense of weight in the back, loins, and bottom of the belly, together with uneasiness of the stom-

ach, and flatulency in the bowels; on going to stool, a pungent pain is felt in the fundament, and small tumors are found to project beyond its verge. If these break, a quantity of blood is voided, and considerable relief from pain is obtained; if they continue unbroken, the patient experiences great torture every time he goes to stool, and feels an inconvenience when sitting down on any hard seat. Sometimes incontinence of urine accompanies the complaint.

Frequently, however, the *symptoms* are not so severe as this, but are, notwithstanding, very troublesome, as the patient is, from time to time, annoyed by a relaxation of the skin about the anus, and the formation of a small tumor, which is apt to increase, and be very painful when the patient is walking or standing long. The tumor will sometimes bleed, at other times it will not.

Piles which bleed but little are not of much consequence; but those which bleed profusely, cause violent pain, or induce inflammation and its effects, demand the greatest attention.

Piles, if attended to at the beginning, are always curable. They are a consequence of disorder of the liver. We have hitherto described how the blood from the intestine passes through the liver on its return to the heart, and it will readily be understood that a disorder of the liver, that deranges the passage of the blood through that organ, dams the stream below. Thus stayed in its course, the stream flows slowly through the veins; the veins always contain an unnatural quantity of blood, and the tumors of piles are these swollen veins, or the tissues near, swollen by the blood forced through the walls of the vessels.

TREATMENT.—Give an adult five grains of calomel, and in three or four hours the following:

Sulphur,	. . . . .	1 drachm.
Cream of tartar,	. . . . .	20 grains.
Water,	. . . . .	2 ounces.
Mix for one dose.		

Repeat this plan two days, and, after that, as the obstinacy of the case may require. Bathe and cleanse the part every night and morning with soap and water.

In all cases of piles, the pain or irritation is much relieved by the free application of cold water on a cloth bound to the part, and that should be changed as often as the water becomes warm. If the heat and irritation are very severe, the immersion of the parts in a hip-bath of cold water should be resorted to, and will afford relief.

Prevent a recurrence of this trouble by the use from time to time of mildly-purgative medicine, as rhubarb.

*DESCENT OF THE RECTUM.

In this the rectum comes down through the anus, generally by forcing at stool. The cause is a want of tone in the intestine itself. The part must be restored carefully with the hand, guarded with a greased cloth, and applications kept on of compressors wet with cold water. An injection of alum-water may also be used to give tone. The bowels should be kept in such state that the passages will never be hard.

This trouble will sometimes result from the irritation of stone in the bladder.

RUPTURE.

In this, some portion of the intestine is forced outward, through natural openings in the inner division of the abdominal wall. The gut may pass down on the inner surface of the leg, follow the great artery, or it may come through at the junction of the thigh and belly, or at the navel.

A swelling, small at first perhaps, is found in one of these places. It is not painful, nor are there signs of inflammation about the spot; if it recedes on pressure, or on a recumbent position being assumed, the patient may be pretty sure that it is a rupture; if, on pressing it back, there is a gurgling noise, it contains intestine only; but, when omentum also is projected, there will be a solid, doughy kind of feel. Persons are often ruptured for some time without being aware of it. They will perhaps experience uneasy sensations about the pit of the stomach, a kind of dragging, with slight nausea; on their having occasion to make some great exertion that hitherto undiscovered lump will become more prominent, and force itself upon the attention, and there may, or may not be, sickness and vomiting until it is returned into the abdomen, which it generally can be with a little careful manipulation. The object, then, is to secure such an amount of pressure over the orifice of escape as to prevent its protruding again, and this can only be done by a truss of some kind. The patient is never safe without one; and, as it is of the utmost consequence, both to the comfort and safety of the wearer, that the instrument should be exactly suited to the case, it is best to resort at once to an experienced surgical-instrument maker.

The part should be sponged night and morning with cold water, and, if it gets chafed or abraded, it should be dusted after each sponging with starch-powder or flour. A regular action of the bowels is essential to the safety of ruptured persons, as the violent medicines necessary to relieve a state of costiveness will be likely to

increase the rupture to a dangerous extent. Castor-oil, or some other gentle aperient, should be taken as often as may be necessary to insure a daily motion without much straining.

One of the tendencies of this affection is to cause a deficient action of the bowels, and when these are much confined, and there is a sense of constriction about the middle, and vomiting of feculent matter, an examination should always be instituted, to ascertain if rupture has not originated this train of symptoms. It may happen with ruptured persons who do not wear a truss, and also with those who do, if the instrument is not quite suited to the case, that the protruding gut or omentum may become so large that there is much difficulty in getting it back, or reducing the rupture, as we should say; if the patient cannot, by lying down on his back, and gently pressing it up through the aperture, accomplish this, the aid of a surgeon should be obtained, if possible; should it not be, a warm bath may be first tried, keeping the patient in until he feels faint, so as to relax the muscles; he should, during this time, repeatedly renew the efforts above directed. If this fails, apply pounded ice in a bladder to the part, or a freezing mixture, composed of table-salt, saltpetre, and sal-ammoniac, in equal proportions, with a little water added, just enough to make it liquid. If neither of these can be readily obtained, intense cold may be produced by means of wet rags laid over the swelling, and evaporation encouraged by a continual stream of air from a pair of bellows directed upon the rags, which should be continually rewetted.

Sometimes, the return of the rupture may be accelerated by a reversal of the position of the body, placing it on an inclined plane, with the head downward. Bleeding to faintness while standing up, and then lying down, has sometimes succeeded, but, of course, only a surgeon could attempt this. Should all means fail, we have what is called *strangulated hernia*, and an operation is necessary; this is always attended with considerable danger. When rupture of the groin occurs with young children, nothing can be done for the first three months or so, but to keep the child as much as possible in a recumbent position, and sponge the part frequently with cold water; at the end of the above period a light truss may be worn with every prospect of a cure, if proper attention is paid to the case. When a person about forty years of age becomes ruptured, there is little chance that a cure will be effected, although by constant pressure on the part, with an avoidance of violent exertion, the size of the rupture may be greatly reduced.

FISTULA.

Fistula in ano is the disease that is generally understood by the term fistula, used by itself. In this there is a passage or sinus that runs by the rectum, the inner opening of which is in the wall of the rectum, and the outer, if it have one, near the anus. Sometimes the passage runs up close to the interior, but does not open into it. There is commonly intense pain with fistula, and an inability to move about. Domestic treatment will do little for it. If there is an external orifice, it can be kept open by means of twisted lint passed deeply in; but most commonly an operation is required, which, although sharp, is short in its continuance; it consists in making a complete division with the knife of the whole of the parts between the fistula and the bowel. After this the cure is generally effected without much difficulty; the spasmodic pains, nearly always felt, are at once relieved, and the constitutional derangement gradually passes away.

No medical treatment promises any benefit except the local use of a strong solution of krameria. Inject the solution several times a day. Good results have been obtained in this manner.

DISEASES OF THE URINARY AND GENITAL ORGANS.

INFLAMMATION OF THE KIDNEYS.

THERE are pains in the loins, aggravated by pressure, by sneezing or coughing, or by a sudden movement; and pain extending through the abdomen, and attended with numbness down the inside of the thighs and testicles. Urine is frequently voided, with great pain, and is high-colored, sanguineous, or dark-brown. Shivering; nausea; vomiting; bowels confined; frequent and sharp pulse; skin hot and dry; fever, varying in severity according to the acuteness of the attack. The disease will present several degrees of severity down to the chronic state; its duration will vary from a few days to many months.

If the inflammation be not subdued, the constituents of the urine become absorbed into the circulating blood, and the patient becomes poisoned thereby. The extremities lose their warmth, the pulse fails, the muscular power sinks, delirium comes on, and the patient dies in lethargy or convulsions.

CAUSES.—Disorders of the digestive organs; gouty or rheumatic affections; blows; injuries on the loins; too long retention of urine; improper use of irritating diuretics; gravel or concretions in the kidneys; suppressed perspiration; cold; eruptive fevers.

TREATMENT.—For the acute attack, caused by cold or by injury, leeches applied freely to the loins, followed by warm fomentations or poultices; calomel and opium; tartar-emetic, and purgatives; give three grains of calomel and one of opium, repeated as the severity of the symptoms urges. The tartar-emetic should be in the following mixture:

Solution of acetate of ammonia,	2 ounces.
Powdered nitre,	$\frac{1}{2}$ drachm.
Tartar-emetic,	$\frac{1}{2}$ grain.
Water,	4 ounces.

Give two tablespoonfuls every few hours.

For the less severe attacks, give salines, diaphoretics, warm bath and local fomentation.

DIABETES.

The characteristic symptom is a frequent and copious discharge of urine, several gallons being sometimes passed in a day.

This disease comes on insidiously, and is generally not noticed until it has existed some time. It is attended by constitutional symptoms, which are at first slight and indefinite, but after a while become distinct and urgent. These are—debility; dryness of mouth and throat; loss of flesh; great thirst; a dry, red tongue; increased appetite; costiveness; pains in the loins and pit of the stomach; chilliness. As the disease advances, all these symptoms become greatly aggravated; the spirits become depressed, or the mind anxious, listless, weak, or peevish; the legs swell, and the patient sinks.

Diabetes indicates grave disorder of the kidneys and digestive organs. Its common causes are intemperate living, excess of venery, copious evacuations of the bowels, long continued, frequent use of diuretics and acrid drinks, or it may be hard labor and poor living, or aught which tends to impoverish the blood. The physiological starting-point is an impaired action, or morbid change, in the natural powers of assimilation and digestion. It was formerly regarded as invariably fatal. As, however, the condition of the urine in disease is now more accurately investigated, the presence of sugar in the urine is found frequently to be a temporary occurrence. Diabetes is also now more readily detected in its early stages. In order to attain this object, so important to efficient treatment, we give the following tests:

1. Pour a few drops of the suspected urine on a white plate, placed near a fire, or on a stove; while warm, drop a few drops of strong sulphuric acid, and continue the heat. If the urine contain sugar, the spot where the acid comes in contact with the urine will first become deep brown, then black, by the charring of the sugar. If no sugar be present, the urine is changed to a pale-orange color.

2. Place a small quantity of the urine in a test-tube or watch-glass; add half its quantity of strong solution of potash; heat the mixture carefully over the flame of a spirit-lamp; and the pale mixture will become of a deep-brown color, with a cloud of sediment.

3. Add a little yeast to the urine, and expose it to a temperature of about 80°; the mixture will soon become turbid, and ferment, producing a frothy scum having a vinous odor.

4. Allow the urine slowly to evaporate for some time by a gentle heat, and a treacly liquid, or syrup, will be formed.

There are other more exact tests than these, but they are complicated, and cannot be undertaken by persons unacquainted with chemistry. At the commencement of the disease, however, and when the flow of urine is much in excess of the natural quantity, there may be no sugar in it—the presence of sugar indicating a further progress of the disease and greater disturbance of the nutritive functions.

TREATMENT.—The diet should be entirely animal food—all vegetable substances to be avoided—the bowels to be kept quietly open with pills of aloes and soap, emetics and diaphoretics occasionally administered; perhaps the compound ipecacuanha-powder, ten grains at bedtime, is the best; alkaline drinks, such as soda-water, may be given with advantage, and blisters and issues applied to the regions of the kidneys, covering the skin with flannel, anointing it with camphorated oil; using the warm bath and the flesh-brush are also good, as are chalybeate and sulphurated waters. Tonics, astringents, and stimulants, will be of service, especially preparations of iron with tincture of cantharides; if in the summer, sea-bathing, and any thing which may serve to invigorate the system: such is an outline of general treatment; of course, constitutional peculiarities require special and appropriate remedial measures.

Trousseau, the great Paris physician, recommended for this disease medicines to act especially on the nervous system. He gave large quantities of the tincture of valerian, but later experiments seem not to obtain the success he claimed.

BRIGHT'S DISEASE.

This is a disease of the kidney, the distinguishing peculiarity of which is the presence of the serum of the blood in the urine, the albumen of which coagulates on the application of heat; there may be only sufficient to cloud the fluid, or enough to form nearly a solid mass. The causes of this disease, which was first described by Dr. Bright, of London (hence its name), are various; it may be severe cold, repressed perspiration, or immoderate use of ardent spirits; and it not uncommonly follows scarlet fever; any thing that may excite and keep up inflammation may lead to the change of structure that marks this disease. It is usually accompanied by febrile symptoms,

and dropsical swellings of the face and extremities, and eventually of the body also. There is a bloated expression of countenance, with singular pallor, and there is swelling of the feet and ankles; also persistent headache and dyspepsia; and in some cases diarrhœa and vomiting.

All these indicate such a change in the kidney as to prevent the performance of its function—the kidney cannot carry out the water properly, and the system becomes dropsical; it decomposes the blood, and the nutrition fails; it does not carry from the blood certain poisons that are in it, and these, remaining, disturb the nervous system, producing headache, vomiting, and eventually more or less paralysis, stupor, and perhaps convulsions.

TREATMENT.—In the early period of the disease, before the inflammation has induced changes in the organs, treat it actively by cups to the loins, hot baths, and purging, with calomel and jalap, ten grains of each, for two or three days successively. Stimulate the skin, that the kidney may be relieved of its labor and have rest; give the liquor of acetate of ammonia freely. If the urine is still found to contain albumen, after effectual trial, the best that can be done is to supplement as far as possible the action of the kidneys by constant stimulation of the bowels and skin. Purge every other day actively with the compound powder of jalap, and keep up a liberal perspiration with acetate of ammonia, hot baths, or any other effective means.

Where there are convulsions, give the bromide of potassium in doses of twenty to forty grains, repeated as the occasion may require.

RENAL COLIC.

This occurs when a stone formed in the kidney is impelled down the narrow passage that leads from this organ to the bladder. There is no symptom but pain—and pain of the most terrible character. Nothing can be done but to give opium. Death may be the result of this trouble, when the stone is too large to pass.

Cancer occurs in the kidney, and may generally be recognized by frequent recurrence of passage of blood in the urine, coinciding with a tumor in the abdomen. This disease is but little susceptible of treatment, and least of all domestic treatment. Relieve pain with opium, and relieve the kidneys by stimulating the skin.

INFLAMMATION OF THE BLADDER.

This may be either acute or chronic. In the first there are severe pain, often of a burning character, with tenderness at the lower part

of the stomach and body, in the loins and down the thighs; frequent occasion to void urine, which is passed with difficulty and great pain, in small quantities; confined bowels; restlessness; hot skin; rapid pulse; fever; and the urine is high-colored, and cloudy with mucus.

In the chronic inflammation there are the same symptoms in slighter degrees and less severity, but they continue. After the affection has lasted a few weeks, the urine becomes thicker, until it is sufficiently viscid to adhere to the sides of the utensil; it then exhales a strongly ammoniacal odor.

Distinguish this disease from spasmodic attack of gravel by the presence of fever, and the more sudden character of the seizure in paroxysms of gravel.

TREATMENT.—Give at once about five grains of calomel, following it up with a rhubarb-draught, or some other mild aperient; the application of leeches to the lower part of the abdomen, with the use of a warm hip-bath, to encourage the bleeding, the bath to be continued daily, or twice a day, if necessary; the use of diluents, such as barley-water, or linseed-tea, and abstinence from all stimulating drinks whatever. These means, with a rigidly-abstemious diet, and rest in a recumbent position, will generally reduce the inflammation in the course of a few days. Should they not, and should the patient be of a full habit of body, bleeding from the arm may be resorted to, and such other measures of depletion as may be necessary. The following is a good formula for a mixture: nitrate of potash and tincture of henbane, of each two drachms; liquor of acetate of ammonia and mucilage of acacia, of each one ounce; camphor-mixture, ten ounces. Take two tablespoonfuls every four hours. Injection of the bladder with warm water, or some emollient fluid, such as infusion of linseed, is sometimes resorted to with good effect. The suppression of urine, and consequent distention of the bladder, will sometimes cause inflammation of that organ; or it may proceed from a calculus of considerable magnitude lodged within it.

If the inflammation be chronic, leeches are seldom required; in other respects the treatment must be much the same as that above recommended. When this treatment does not afford relief, and the urine retains its acid quality, which may be known by its turning litmus-paper red, two and a half grains of calomel, with three grains of opium, should be taken three times a day. If the urine is alkaline, and deposits mucus of a brownish color, the patient should take, with each dose of the above mixture, fifteen minims of wine of colchicum. This is Sir B. Brodie's plan of treatment. Great care should be taken when the patient is recovering, as to the diet, and

mode of living; a very slight excess in eating or drinking, or violent exertion, may bring on a relapse. It is well to take, for some little time, one of the following pills, twice a week: blue pill, twelve grains; ipecacuanha-powder, three grains; acetous extract of colchicum, six grains. Mix, and make into six pills. An aperient draught of compound infusion of senna, or of rhubarb and magnesia, should also be taken occasionally.

IRRITABLE BLADDER.

The patient is distressed by a frequent desire to void his urine, accompanied with great pain in the region of the bladder; and, in the continuance of the disease, the former symptom becomes at length so urgent, that he cannot pass more than ten or fifteen minutes without feeling the inclination. In this case, the bladder is the subject of chronic or slow inflammation, when the stimulus of the urine is such as to excite excessive pain, and an uncontrollable desire to part with it nearly as soon as secreted. Sometimes in this complaint the urine is mixed with blood; and, should it go on to produce ulceration in the organ, there will be a discharge both of blood and mucus, and frequently of matter (pus).

It may be *distinguished* from stone in the bladder, by observing that, in the latter complaint, severe pain is felt after the water is voided, while in irritable bladder its expulsion is always followed by considerable, and sometimes perfect, relief.

TREATMENT.—The objects to be accomplished in this case are to keep the organ in a state of rest and ease, by constantly wearing a catheter; and to allay pain and irritation by the internal use of alkalies, combined with opium, occasional doses of calomel and opium, cupping on the loins, the warm bath, and warm fomentations, etc.

When, therefore, a patient is suffering from irritable bladder, he should immediately have ten or twelve ounces of blood taken from the loins by cupping; a blister should then be placed on the lowest part of the belly over the region of the affected organ, after the part has been shaved, and a grain of opium mixed with a grain of calomel, and made into a pill, be taken directly, and repeated every night, or twice a day if the symptoms are severe. Through the whole course of the complaint, the bowels must be preserved free from confinement by the use of castor-oil.

To keep the bladder in a state of rest, a short flexible catheter should be introduced without delay, and constantly worn by the patient until he has perfectly recovered. This instrument affords great ease, by allowing the urine to escape as fast as it is secreted by the

kidneys, thus keeping the bladder continually empty. The point of the catheter should only just enter the bladder, to accomplish which it is necessary to pass it to the extent of about nine inches, when, after the remainder has been cut off, its points should be tied to a bandage carried between the thighs and round the loins. As much quietude as possible must be observed.

The foregoing means will afford immediate and sensible relief, and alleviate the acute symptoms, when the patient will act wisely to take twenty drops of the *liquor potassæ*, with four drops of laudanum, three or four times a day, in barley-water; and this medicine, if it agrees, should be continued for a month or more, till the cure is established. As the patient recovers, the quantity of opium may be gradually lessened to one or two drops in a dose.

Now and then the irritability of the urinary passage, as well as that of the neck of the bladder, is so great as to render it impossible to pass the catheter, without occasioning considerable pain, and subsequent increase of the irritation for some days. This is a rare occurrence, but, when it does happen, the catheter must be laid aside altogether, and the other means just noticed trusted to alone.

When the case is of an aggravated nature, and the bladder has become ulcerated, the remedies will require a longer perseverance.

INCONTINENCE OF URINE.

This disease usually proceeds from relaxation or palsy of the sphincter muscle of the bladder, induced by debility, the abuse of spirituous liquors, excess in venery, etc.; or it arises from a peculiar acrimony in the fluid itself; from a diseased state of the organ, injury done to the parts, either by accident, by the process of ulceration, or by the performance of the operation of lithotomy; irritation produced by stones in the bladder; or the pressure of the womb in a state of pregnancy.

TREATMENT.—As the complaint commonly proceeds from debility, tonics and stimulants are generally found to be the most efficacious remedies; such as bark, iron, turpentine, tincture of Spanish fly, copaiba-balsam, lime-water, and bear's whortleberry. The following prescriptions are sometimes very serviceable, and, should one fail, the patient can try another:

Take of sulphate of zinc,	1 drachm.
Common turpentine,	3 drachms.
Rhubarb, in powder,	$\frac{1}{2}$ drachm.

Mix, and make into sixty pills; one to be taken thrice a day.

Take of tincture of Spanish fly, 15, 20, or 30 drops
 Decoction of bear's whortleberry, 4 tablespoonfuls.
 Mix for a draught, to be taken three times a day.

Take of balsam of copaiba, $\frac{1}{2}$ ounce.
 Frankincense, in powder, 2 drachms.
 Mucilage of gum-arabic, $1\frac{1}{2}$ ounces.
 Simple syrup, $\frac{1}{2}$ ounce.
 Cinnamon-water, 5 ounces.

Mix, and take three tablespoonfuls twice a day.

At the same time that one of the above remedies is taken internally, cold water should be freely applied locally; and an occasional blister to the *sacrum*, or broad bone at the bottom of the spine, is frequently of material service. Five to ten drops of the tincture of belladonna, given at bedtime to boys who are apt to wet their beds, will often completely cure them of this incontinence without the use of any other remedy.

Should the tonic plan fail in adults, it will be necessary to stimulate the nerves, upon which the action of the sphincter of the bladder depends. For this use the extract of belladonna. Give from a fifth to a tenth of a grain daily, in pill, increasing the dose till its effects on the system are evident. This medicine can scarcely fail.

STONE IN THE BLADDER.

The symptoms are usually slow in development, and indefinite in character. Suspicion of the existence of a stone in the bladder should be excited by increased frequency of occasion to pass water, which is voided with difficulty, and in a broken stream; or, the stream, being entirely checked, flows again with a change of posture. Stone in the bladder is also attended with pain in the course of the urethra, extending deep in the body, to the neck of the bladder. One of the most common signs of stone occurring in children is, that, to relieve this pain in the organ, they acquire a habit of pulling the foreskin, which thereby becomes elongated.

When stone has been present in the bladder for some months or years, it gives rise to chronic inflammation of the bladder.

These are the general symptoms of stone in the bladder: alone, however, they are not conclusive—they must be confirmed by the surgical operation of *sounding*, which consists of the introduction of a steel rod into the bladder, so that the stone shall be detected by the touch and hearing. The operation must be performed by a surgeon.

CAUSES.—Concretion of earthy matter upon small fragments of gravel or other substances in the bladder. This complaint occurs in

morbid conditions of the constitution, following gout, indigestion, etc. It frequently, however, takes place in children in whom these causes cannot have operated; it is, therefore, not always clear to what cause it can be attributed.

TREATMENT.—The only complete cure for stone is to be sought in the removal of the concretion from the bladder. This can only be done by a surgeon. If symptoms of chronic inflammation of the bladder be present, relief may be obtained by the means recommended for that disease. Irritability of the bladder, denoted by frequent urgency to pass water, may be allayed by doses of solution of potash, or of tincture of iron, and tincture of henbane. Careful dieting should be observed, in order to avoid the causes of indigestion, etc.

GRAVEL.

Crystalline sediments deposited in the bladder from the urine constitute this disease; when shapeless, irregular, and reducible to powder, they may be either red, or pink, or white. Into the composition of the latter the phosphates largely enter; the former consist chiefly of lithate of ammonia. When crystallized, they may be also red or white, the former consisting of crystals of uric or lithic acid, and the latter of triple phosphate of ammonia and magnesia. Although the deposits in gravel vary considerably in their form and color, and to some extent in their character also, yet the nature of the disease is essentially the same. If the deposited particles remain stationary in the bladder for a length of time, others gather around them until they form a hard, solid mass or stone.

The symptoms of an attack of gravel are constipated bowels, restlessness, and dry skin, with pains in the loins, commonly on one side, where it descends, following the course of the ureter; the thigh and leg feel numbed; and sometimes in the male the testicles are drawn up. There is frequently sickness, and an urgent desire to make water, which is passed with difficulty, and is high-colored and turbid, depositing a sandy powder, which is sometimes red, at others white, or a mixture or alternation of the two colors, with occasionally a bloody tinge. Derangement of the digestive organs is common in such a case; there will probably be constipated bowels, with acid eructations, with great restlessness, and a sense of weight at the pit of the stomach.

In cases of white gravel, an acid is the best medicine, and all the acids seem to answer the purpose, though the muriatic, nitric, and citric acids, have been in the greatest repute. The citric acid, or lemon-juice, is preferable for children, as being the pleasantest, and

that which may be persevered in for a considerable time; it may be mixed with water in any proportion that is agreeable. The muriatic acid may be given in doses of from five to twenty drops, twice or thrice a day, in four tablespoonfuls of water; and the nitric acid in doses of from five to twelve drops, in the same proportion of fluid. Tonics, also, as quinine, bitter infusions, and decoction of *pareira brava*, are suitable.

But the red gravel is by far the most frequent kind of deposit, and the most effectual remedies for it are the alkalies, and the alkaline carbonates, such as lime-water, the bicarbonate of potash or soda, magnesia, and lithia or potash-water. But, to be really useful, they must be conjoined with alteratives and aperients; for it ought never to be forgotten, in the treatment of gravel and stone, that they owe their formation chiefly to a weakened and vitiated action of the digestive organs, which will invariably require this conjunction, in order to the accomplishment of a permanently beneficial effect.

Half a drachm of bicarbonate of potash, or soda, may be taken in infusion of cascarrilla, or water, once or twice a day, and three grains of blue-pill every other night; the following draught being taken every morning, or every other morning, as a gentle and suitable aperient:

Take of Rochelle salts,	2 drachms.
Carbonate of soda,	1 scruple.
Water,	3 tablespoonfuls.
Mix, and, after adding a tablespoonful of lemon-juice, or thirty grains of tartaric acid, let it be drunk directly.	

Constant active exercise is of the first importance in all gravelly disorders; and flannel should be constantly worn. Sailors, and other persons accustomed to constant and laborious exercise in the open air, are very rarely affected with these complaints. M. Magendie, the celebrated Parisian physician, has given a striking example of the advantages to be derived from exercise and abstinence, and the mischievous effects of luxury, in the case of a merchant of one of the Hanseatic towns. "In the year 1814, this gentleman," says he, "was possessed of a considerable fortune, lived in an appropriate style, and kept a very good table, of which he himself made no very sparing use. He was at this time troubled with the gravel. Some political measures unexpectedly took place which caused him the loss of his whole fortune, and obliged him to take refuge in England, where he passed nearly a year in a state bordering upon extreme distress, which obliged him to submit to numberless privations: but his gravel disappeared. By degrees he

succeeded in reëstablishing his affairs; he resumed his old habits, and the gravel very shortly began to return. A second reverse occasioned him once more the loss of all he had acquired. He went to France, almost without the means of subsistence, when, his diet being in proportion to his exhausted resources, the gravel again a second time vanished. Again his industry restored him to comfortable circumstances; again he indulged in the pleasures of the table, and had to pay the tax of his old complaint."

INFLAMMATION OF URETHRA—GONORRHOEA—CLAP.

The word gonorrhœa means literally involuntary emission of semen; but it is always applied to a discharge of purulent matter from the urethra or vagina. The common English term for the disease is *clap*. Gonorrhœa may be shortly described as a morbid discharge from the urethra, in consequence of impure connection; it is, as Abernethy observes, "a mere local disease, not followed by any constitutional symptoms." It is a quite separate and dissimilar disease from the old *lues*, or venereal disease, of which it was long considered a modification. In this case, the gonorrhœal poison, falling upon a mucous surface, produces from thence a discharge of infectious matter; in the other, the syphilitic poison applied to the skin, or, as it is believed, to any surface, produces ulceration and inflammation, forming a sore called *chancre* (see Syphilis).

SYMPTOMS.—Shortly after the infection has been communicated (it may be two or three days, or a week, or more), the patient experiences a sensation of heat, with tingling and uneasiness, about the orifice of the urethra; this is quickly followed by swelling and redness about the margin of the opening, and a slight mucous discharge; then there is pain, and what is called *ardor urinæ*, or scalding of the water; then the discharge becomes yellow, thick, and looks like pus.

As the discharge continues, the glands in the groin become enlarged and painful, and the feeling of weight in the parts is oppressive. Chordee occurs, when the inflammation, extending, touches parts that lead to erection, the erection being exceedingly painful in the inflamed state of the urethra. If the disease is neglected or uncontrollable, the inflammation extends to the bladder and the seminal organs, and leads to swelling of the testicles.

TREATMENT.—Do not trust to the notion that a clap will wear itself out; sometimes it will, but the cases are very rare—far oftener, if neglected, it will lead to troubles that will shorten life, and make miserable what is left. Inflammation of the bladder, and

perineal abscess, stricture, and gleet, are the common consequences of uncured claps.

But the disease, with care, may be cured as certainly as a cold in the head, for it is, like that, a catarrhal inflammation of a mucous membrane; only it has a greater tendency to spread. Let the person remain in the house a few days—in bed, if possible, and treat himself as for a cold. Take ten grains of blue-pill, and in a few hours an ounce of the fluid extract of senna, with a drachm of Epsom salts, and use bland, demulcent drinks, flaxseed-tea, gum-water, or barley-water, abstaining from stimulants and from an exciting diet. Use no injections at all, but, if the *ardor urinæ* is severe, let the penis hang for a considerable time in warm water, which will relieve the inflammation. If the chordee is severe, apply cloths wet in ice-water till the erection is reduced. In the immediate agony of this pain, when it awakes the person from sleep, an effective remedy is to bend the penis by force toward the under side. This relieves the tension on the inflamed urethra, which is the cause of the pain.

When the activity of the inflammation is lessened, take the balsam of copaiba. This may be taken in mixture :

Balsam of copaiba,	1 ounce.
Mucilage,	1 ounce.
Camphor-mixture,	4 ounces.

Take a tablespoonful morning and evening.

If this mixture is found disagreeable, the copaiba may be taken as prepared in capsules by the French apothecaries.

Should the copaiba alone fail to check the discharge in a few days, use cubebæ at the same time. Take of the powder of cubebæ a drachm, in water or milk, three times a day. Powdered alum may be added in small quantity with some advantage.

Should the discharge persist after all inflammation is subdued, use an injection composed of—

Sulphate of copper,	6 grains.
Rose-water,	12 ounces.

As it is of great importance that an injection should be applied so that it should come in contact with every part of the inflamed surface, we here append a few directions for its proper application : First take care that the syringe, be it of pewter or of glass (gutta percha is the best), works freely and easily with a slight pressure of the fingers. From one and a half drachms to two drachms of the liquid is the quantity required at once, and, when the instrument is charged with this, insert the point carefully to the extent of about half an inch within the lips of the urethra, which should be gently pressed

together so as to prevent the reflux of the fluid, which should be felt distending the passage as far down as the membranous portion. When the syringe is emptied, withdraw the point, and keep the orifice of the urethra pressed together, as above directed, for two minutes or more; then withdraw the pressure, and the liquid will flow out, most likely with considerable force, in consequence of the elasticity of the canal, which it is advisable to clear by making water before using the injection; and this reminds us of a popular notion that mischief may be done by the injection reaching the bladder; but this is an idle fear with the charge which an ordinary syringe can convey. An injection should never be so strong as to cause much smarting or pain in the passage, only a sense of titillation; it is best to begin with it very weak, and gradually increase its strength. Swollen testicles and sympathetic buboes are by some attributed to the use of astringent injections, but these occur when no injections are used.

GLEET.

When gonorrhœa is neglected, a confirmed gleet is often the result, which is very difficult of cure, the discharge being intermittent, sometimes profuse, and, at others, but a few drops now and then in straining at a costive motion or the like. There is generally little or no color in it, but sometimes it becomes yellow, and, under the effect of much excitement, green, and even bloody; it may be rendered so, and purulent, by excesses of any kind. The medical treatment consists in the exhibition of the following medicines:

Sweet spirits of nitre,	2 drachms.
Balsam of copaiba,	1 drachm.
Mucilage of acacia,	1 ounce.
Camphor-mixture, sufficient to make six ounces; take a tablespoonful two or three times a day.	

If this fails, let the following pills be taken:

Powder of Spanish flies,	3 grains.
Chio turpentine,	1 drachm.
Mix and divide into twelve pills; take one three times a day.	

The local treatment consists in the use of bougies and injections; the best formula for the latter is bichloride of mercury, half a grain; distilled water, six ounces; after a time the strength may be doubled, but stronger than this it should not be used; if it does not succeed, a solution of ammoniated copper, or sulphate of copper, may be tried. Sea-bathing, rest, and tranquillity, a tolerably generous diet, are among the most important remedial measures. Gleet discharge sometimes proceeds from a scrofulous or

relaxed state of the system, and, in this case, tonics should be administered.

Female gonorrhœa and gleet are not so decidedly affected by the specific medicines copaiba or cubeb, as they are in the opposite sex; a free use of diluents, and such lotions as the diacetate of lead, to appease the local inflammation, will generally prove successful, if persevered in, and accompanied by rest and gentle aperients; a sponge dipped in the lotion should be allowed to remain in the vagina, frequently cleansing and changing it. Female children, from a very early age up to that of puberty, have sometimes a purulent discharge from the pudendum, which may be thought gonorrhœal by those ignorant of their liability to it. Unpleasant suspicions, and even accusations may, as they have done, arise out of this; but a surgeon can at once assure the parents that they are unfounded. The proper treatment in this case is the administration of calomel and rhubarb, combined with a little jalap, and the application of black-wash to the inflamed parts.

STRICTURE, OR RETENTION OF URINE.

SYMPTOMS.—Frequent occasion to pass water; dribbling of a few drops afterward; slight pain beneath the root of the penis; the stream of water smaller than usual, forked, twisted, or scattered, and requiring efforts to void it. Occasional spasmodic attacks of difficulty in passing water; disturbed sleep; disordered health; depression of spirits, etc.

CAUSES.—Inflammation and irritability of the membrane lining the passage.

TREATMENT.—A hot bath, with moderate repeated doses of opium, will often relax the spasm that sometimes causes retention of urine; if these fail, a small catheter should be tried until, after gentle pressure, it will pass through the obstruction. The instrument should afterward be used every three or four days, a larger being gradually employed. The operation of passing the catheter should, if it be by any means possible, be confided to the skill of a medical man. If this cannot be, the non-medical operator may, perhaps, be guided by the following brief directions:

A catheter should be selected having a calibre of about a common writing-quill. It should be carefully inserted into the orifice of the penis, which for that purpose should be drawn forward between the fore and second fingers of the left hand. The curvature of the catheter should be steadily kept looking upward and backward. The point of the instrument being gently pressed against

the upper surface of the urinary passage, will, after a while, slip into the bladder with a distinct, sudden giving way of resistance.

Violence is to be carefully avoided, or the instrument will pierce the surrounding structures, and thereby cause fatal mischief without present relief.

Many old men require the passage of a catheter twice a day. They easily learn to perform the operation for themselves.

If the retention proceed from inflammation of the bladder, it will generally yield to the treatment for that disease.

SPERMATORRHŒA, INVOLUNTARY OR NOCTURNAL EMISSIONS, IMPOTENCE.

An occasional nocturnal emission in a person of otherwise ordinary health is not a sign of disease. It only indicates the tendency of thought in dreams. But where this occurrence is constant, where the part cannot come in contact scarcely with the wearer's garments, and where the least thought of sexual tendency excites emission, the case is different. Here the irritability of the parts is such, that a touch, or the excitement of thought, effects what ought to require sexual congress. Consequently the system experiences constant loss, and upon the losses follow greater weakness, greater irritability, matters growing worse and worse, till finally there is complete want of nervous power, and incapability of erection; all running on from the impotence of one organ to impotence in all, and final insanity.

The cause of the excessive irritability in which all this trouble begins is ninety-nine times in a hundred the habit of masturbation, or self-abuse. Treatment must begin with the absolute discontinuance of this habit, and the adoption of a regimen of life adapted to give tone to the system. Bathing in cold water, life in the open air, a light diet, no stimulating drinks or food, no romances to read, and the smallest amount of sleep taken that the system can bear.

Take at the same time the following:

Tincture of the chloride of iron,	1 ounce.
Tincture of ergot,	1 ounce.
Tincture of the vomica-nut,	$\frac{1}{2}$ ounce.

Take ten to twenty drops in water three times a day.

DISEASES OF THE HEART AND ARTERIES.

IN a structure so complex, and formed of such different tissues as the heart is, one might expect that it would be subject to many diseases of both a general and a partial character; and, accordingly, we find there are few persons who have not had to complain of symptoms which were indicative of heart affection of some kind, although few, perhaps, really have what may be properly called heart-disease. Strong emotions of the mind, derangements of the liver or stomach, will often cause flutterings and palpitations, an increase or decrease of arterial action, and other symptoms, which would seem to indicate that there was something very wrong with the great organ and centre of circulation; but these symptoms, in the great majority of cases, are merely sympathetic; and very commonly, when a person is said to die of "a broken heart," there is no organic disease to justify the popular verdict.

Diseases of the heart may be arranged in two classes; those that are strictly nervous, in which the function of the organ only is disordered; and those that are organic, in which there is a change of some part of the substance of the heart.

The common organic diseases are inflammation of the pericardium or envelope of the heart, pericarditis; inflammation of the lining of the heart, endocarditis; valvular disease, a consequence of the last-named; hypertrophy, or enlargement; and fatty degeneration, sometimes inducing rupture of the organ. All these diseases have so nearly the same history, symptoms, and management, and are so little subject to medical treatment, that it is scarcely worth while to distinguish between them. Both pericarditis and endocarditis are inflammations apt to occur in cases where other inflammations occur, but they have a peculiar relation to rheumatism. The poison in the blood that affects the joints in rheumatism, affects the parts of the

heart covered by these membranes, and they become inflamed. In pericarditis this leads to water on the heart, and great embarrassment of the heart's action. In endocarditis it leads to valvular disease. The valves of the heart become contracted, and insufficient for their purpose, and, because of the defective state of the valves, the heart, to carry on the circulation, works harder. This excessive action induces hypertrophy.

In all cases the only thing to be done for organic disease of the heart, that is within reach of domestic management, is to save the organ by rest. In excitement, in exertion, in exposure, in the use of stimulants, there is constant aggravation of the trouble by the enforced activity of the heart. A quiet life, that keeps the pulse equable and calm, and sedatives, if necessary, are the remedies. The best sedative, and one that may be used through years, is the infusion or the syrup of wild-cherry bark.

In the class of nervous disorders of the heart are palpitation, angina pectoris, and syncope.

Palpitation of the heart has been experienced by most persons who have run themselves out of breath, or, by any violent exertion, causing a great increase of action in the respiratory and circulatory organs. In a healthy and proper state, we are not generally sensible of the regular *beat, beat* of the pulse, which goes on night and day, whether we sleep or wake, and tells that the great organ of vitality is duly performing its office; but when, from any cause, these beats become unusually frequent and forcible, we both feel and hear them, in a very troublesome and distressing manner; and especially is this the case when the bodily strength has been reduced, and the nervous sensibility increased by illness; then we seem to feel within us the swing of a great pendulum, and the *throb! throb!* vibrates through the chambers of the brain, and appears to call forth echoes from every cavity and passage of our internal structure, in a manner that is perfectly agonizing. Sometimes the pulsations are loud, and clear, and regular, at others they are faint and intermittent; now a distant throb, or several, and then a tremulous flutter, or a quick beat, like the wings of a confined bird, flapping against the bars of its prison. When there is violent throbbing of the heart, which may be felt by a hand pressed upon the chest, while the patient is himself unconscious of it, there is reason to apprehend organic disease; but, when there is such acute consciousness as we have described, there is generally only functional or nervous derangement, without any structural change. A disordered stomach may be the cause, although there may be no other symptoms of this. Slight irregularity in the mode of living has produced palpitation of

the heart, and that, too, in an otherwise healthy person. In some, almost any strong nervous stimulant will produce it. In some persons it always comes on after a cup of tea, and is never troublesome when this beverage is not taken. Palpitation is not always, nor indeed commonly, symptomatic of heart-disease; and need therefore cause no unnecessary alarm, although its frequent recurrence should set the patient inquiring as to what is the real cause. Young women with whom there is derangement of the menstrual functions, in whom the blood is watery and poor, wanting the red corpuscles; the listless, the pallid, the hysterical, in these we meet with palpitation in its most aggravated forms; as also in the indolent, the susceptible, and the delicate. In these cases the only treatment likely to be of service must be directed toward removing the predisposing and exciting causes, and establishing a more healthful nervous condition—gentle exercise, tonics, change of air and scene; an endeavor to occupy the mind in some useful and moral pursuit; a well-regulated and generally frugal, although sufficiently nourishing diet; and a strict avoidance of all that can excite or stimulate either mind or body. By this means palpitations, not connected with organic disease, may generally be relieved. If the patient is of a full habit, and has a tolerably strong pulse, bleeding or cupping may, perhaps, be resorted to with advantage; but this should be cautiously done. In such, too, a course of gentle purgatives may be necessary; they should not be salines, but of a cordial nature, something like this:

Pill of aloes and myrrh, and comp. galbanum pill, of each $\frac{1}{2}$ a drachm.

Divide into twelve pills, and take one at bedtime.

Compound infusion of senna and decoction of aloes, of each 3 ounces.

Spirits of sal-volatile, 1 drachm.

Compound tincture of cardamoms, 2 drachms.

Tartrate of potash, $\frac{1}{2}$ ounce.

Mix, and take two tablespoonfuls occasionally.

Angina pectoris is a disease commonly connected with ossification, or other morbid affections of the heart; it is characterized by a sudden and most violent pain across the chest, which extends down the arms, and seems to threaten immediate dissolution. It sometimes comes on during rest, but most usually after violent exertion; the paroxysm does not commonly last long, but it has been known to continue for an hour or more. It is not much under the control of medicines, but may be sometimes greatly relieved by rubbing over the seat of pain, warm applications, and the administration of *antispasmodic* medicines, as camphor or chloroform. An anodyne combined with ammonia has sometimes been found very effectual in relieving the spasm; the following is a good formula:

Chloroform,	2 drachms.
Aromatic spirit of ammonia,	2 drachms.
Compound spirit of ether,	4 drachms.
Paregoric,	4 drachms.
Mucilage,	4 drachms.

Mix. Take a teaspoonful, and repeat in half an hour if necessary.

If the paroxysm is very violent, a little hot brandy and water may also be taken. In the intervals between the attacks, the system should be strengthened as much as possible, and care taken to keep the patient quiet; excitement, either physical or mental, is likely at any time to bring on the pain. An issue over the seat of the disease is sometimes of great service, and an application of sulphate of zinc has effected a cure.

Syncope is a sudden cessation of the heart's action through disturbance of the nervous influence, etc. Generally, it is momentary, but sometimes is continuous, and bears some resemblance to apoplexy. In the latter case it is a symptom of fatty degeneration of the heart. For the common form the remedies are the same as for angina pectoris—stimulants and nervines.

ANEURISM,

Associated with disease of the heart, is this disease of the arteries. Aneurisms may be internal or external: in the former case being so situated in the cavities of the body, as in the abdomen, chest, or cranium, as to render the nature of the disease often very doubtful; in the latter they are so placed in the limbs that access may be easily had to them. The whole arterial system is liable to aneurisms; but they occur much more frequently internally than externally, and oftener, according to some authorities, in those main trunks near the heart than elsewhere: they usually occur in persons of advanced age, such being most liable to chalky depositions of the coats of the arteries, which are among their predisposing causes, with which may also be named violent contusions, abuse of spirituous liquors, frequent use of mercurials, fits of anger, extension of the limbs, straining, and violent exertion of any kind; gunshot, and other wounds, also frequently cause aneurisms. Few persons long addicted to intemperate habits escape this disease.

The *symptoms* of an aneurism are in the early stage a small tumor, pulsating very strongly, more or less evident to the sight and touch according to the depth at which it is seated. Sometimes its presence is only known by the rapid pulsation, and pain, and tenderness of the part: sometimes, only as it interferes with the func-

tions of some important organs, producing impeded respiration, cough, and other distressing symptoms, and ending in death; for which, without a *post-mortem* examination, the physician can assign no adequate cause. For the internal form of the disease no remedial measures can be advised, beyond those recommended for organic diseases of the heart.

TREATMENT OF EXTERNAL ANEURISMS.—This must also depend very much on circumstances. They are often formed on the principal arterial trunks of the upper and lower extremities, or of the neck, as in the carotid: the pulsating tumor, at first filled with fluid blood, which can be pressed out if the finger is passed gently along it, gradually becomes firmer and harder, assuming the character of a solid swelling, retarding the circulation by pressure on the surrounding parts, and causing muscular spasms, cramps, and sudden twitchings. If situated near the joint of a limb, the motion thereof becomes impeded, and inflamed swelling of the whole part often ensues; the cuticle covering the aneurism assumes the appearance of a blistered surface; finally, the sac opens, blood issues forth, which continues to flow from time to time, and the patient dies from weakness occasioned by loss of blood, or by the setting in of gangrene, which spreads up the limb, should it not be removed, and so causes death. Pressure upon the artery, so as to stop the flow of blood into the sac, has been recommended of late; but it causes greater pain than can be generally endured, and does not appear to have answered in the majority of cases in which it has been tried. A surgical operation appears to give the best chance of a cure; and this, which consists in dividing and tying the artery on which the aneurismal tumor is situated, can be of course done only by a surgeon.

No external irritant liniment or friction must be applied in aneurism; nor fomentations and other hot applications. When the bleeding has commenced, the strength must be sustained by good, nourishing diet; but, until it has, it is best to keep the system low: active exertion must be avoided, both mental and physical, and also pressure upon the part affected. *In varicose aneurism*, often caused by a wound in the brachial artery, there is usually a tumor situated at the bend of the arm, which generally proceeds to about the size of a walnut or pigeon's-egg, and then remains stationary, causing some inconvenience, but resulting in no very serious consequences; the limb is, perhaps, weakened, and there is a peculiar and unpleasant vibrating thrill felt, or communicated to the ear.

DISEASES OF THE SKIN AND ITS APPEND- AGES.

RASHES AND ERUPTIONS.

OF all common rashes, and those eruptions on the whole or part of the general surface of the body, which it is not necessary to treat of distinctly in a work like the present, the common exciting causes are sudden chills from drinking cold water, or eating cold vegetables; catching cold by wet feet; excess or imprudence in diet; constipation of the bowels, and other causes of derangement of the stomach, and of impurity in the blood.

The common rashes which appear in blushing patches, gradually deepening to a rose-color, often alternately fading and reviving, and appearing chiefly on the cheeks, neck, or arms, are troublesome, but of no other importance. They require attention to the state of the digestive organs, and the regulation of the bowels by exercise and Scotch oatmeal, or the occasional use of an aperient.

Those rashes which are attended with small pimples, and a painful itching, are still more troublesome than the last, and will require more careful attention to the correction of constitutional disorder, by the use of alteratives and aperients, and a proper diet and regimen. The body must be kept cool, and the bowels open, the diet consisting chiefly of wholesome vegetables, and ripe fruits, with fresh animal food. The use of a drachm of sarsaparilla-powder in water, twice a day, is an excellent plan, the tepid bath at ninety-seven degrees being employed thrice a week. The extract of dandelion is sometimes extremely beneficial. The following mixture also is useful in these and all other cutaneous eruptions:

Take of ipecacuanha-wine,	4 drachms.
Flowers of sulphur,	2 drachms.
Tincture of cardamoms,	1 ounce.

Mix. One teaspoonful to be taken thrice a day, in a wineglassful of water.

In obstinate cases, sea-air and sea-bathing, or the internal use of Congress-water, are very advisable; and the compound decoction of sarsaparilla, with a couple of drachms of antimonial wine to each pint, is sometimes useful.

The nettle-rash (*urticaria*), an eruption of the skin, similar to that produced by the sting of nettles, consisting of solid eminences, or wheals of an oblong shape, is characterized by a burning and tingling sensation with great irritation, heat, and itching. It is generally thrown out by some particular kind of food which disagrees with the system, such as crabs, or other shell-fish, or mackerel; certain vegetables are likely to produce it, such as mushrooms, cucumbers, bitter-almonds, or strawberries. Copaiba, cubebes, valerian, or the fumes of turpentine inhaled during a house-painting, are also likely to occasion nettle-rash.

Of this disease there are two varieties, distinguished as the *acute* and *chronic*: the first runs a short and rapid course, and is attended by febrile symptoms. An emetic should be first administered, if the eruption is caused by any thing recently taken into the stomach; it should be followed by a saline aperient—senna mixture, with salts, is perhaps best, and this repeated until the bowels are freely moved; if the febrile symptoms do not subside, a mixture composed of sweet spirits of nitre, two drachms, liquor of acetate of ammonia, one ounce, and camphor-mixture, five ounces, should be given, two tablespoonfuls every four hours; a small dose of calomel may also be required. In the chronic form, a simple diet, active exercise, an avoidance of any articles of diet likely to excite the eruption; keeping the bowels regular, by gentle aperients, combined with antacids; a five-grain rhubarb-pill an hour before dinner, or a small piece of the root chewed, is a good remedial means; the tepid bath should be occasionally used, or sponging, to keep the skin in a healthy state; to allay the irritations, dust starch-powder over the eruptions, or use a lotion made of rose or elder-flower water, in half a pint of which have been dissolved one drachm of carbonate of ammonia and half a drachm of sugar of lead.

Erythema is a morbid redness of the skin, sometimes called inflammatory blush, and considered as a milder form of erysipelas; from which, however, it differs in not being contagious, and yielding more easily to medical treatment. Sometimes the surfaces are smooth and shining, and like small pimples or tumors, appearing generally on the face, breast, or arms; again they appear as red shining patches on the front of the legs, and sometimes on the arms, assuming a purplish tint after some days, like a bruise. This form appears to be almost peculiar to young women. Then there is the

red gum or *tooth-rash* of children, and the redness occasioned by irritating discharges, such as of the fauces in diarrhœa, or of tears when of an acrid character, or the chafing between the folds of the skin of children, which results from want of proper care in frequent washing and drying the parts. Sometimes after dancing or any violent exercise, drinking cold water when in a heated state, or eating too largely of fruit or other substances, red spots and patches will appear on the back, shoulders, and face, more particularly of young persons; and all these are different varieties of erythema, one of whose peculiar characteristics is that the redness disappears on pressure of the inflamed part, but shows itself again in a second or two after the finger is removed.

The proper treatment for children is bathing the part affected freely with hot water, and then drying thoroughly, and applying powdered starch or violet powder; give, at bedtime, two or three grains of the gray powder (mercury and chalk), with a senna draught, or a dose of castor-oil in the morning; following it up with small doses of quinine, according to the age of the child. Should the inflammation not yield to this treatment, after a few days, use the sugar-of-lead lotions recommended for erysipelas, and still proceed with the quinine, to which rapidly-spreading erythema scarcely ever fails to yield. This course of treatment may be applied, in most of the common forms of the disease, to patients of all ages; but there are one or two exceptional forms to which it is not applicable, such as the form already alluded to as chiefly attacking young women, and of these such as are of a delicate constitution; it is especially likely to come on after scarlet fever or measles. As this is attendant on a debilitated state of the system, it requires nourishing food and strengthening medicine. For its removal some preparation of iron, with infusion of quassia, and an aromatic tincture, or cinnamon-water, will make a good mixture; or take the following:

Sulphate of quinine,	12 grains.
Diluted sulphuric acid,	1 drachm.
Compound tincture of cardamoms,	$\frac{1}{2}$ ounce.
Infusion of roses,	12 ounces.

Dose, two tablespoonfuls two or three times a day; change of air is also desirable.

The "fever-sores" (*herpes*) that appear on the lip, in consequence of any little disorder of the system by cold, scarcely need treatment. Any simple aperient, a dose of salts, castor-oil, or magnesia, that carries off the cold, cures them. No irritating applications should be made to "dry them up." Another development of the same eruption is the breaking-out about the mouth in children called *tetter*. There are itching and swelling of the part, and a number of

vesicles appear that run together, and form an irregularly-shaped blister. When the fluid under the blister escapes, a scab forms, and healthy skin grows beneath.

Similar in nature are ringworm (*herpes circinatus*), and shingles (*cingulum*, or *herpes zoster*).

Ringworm appears in small circular patches, in which the vesicles arise only around the circumference. Ringworm of the scalp, or scalled head, appears in distinct and even distant patches of an irregularly-circular form upon the scalp, forehead, and neck.

The latter form is called pustular. It is the most obstinate and troublesome. In it the scaly pustules are clustered together in elevated patches; a roughness and discoloration of the skin generally precede the appearance of the pustules, which are of a brown tint in one variety, of a straw-color in another; in the latter case the scales or crusts after a while fall off, leaving a number of small cap-shaped ulcers, clustered together like honey-comb; these spread very quickly, sometimes involve the whole scalp, and even extend to the neck and forehead.

Ringworm has its seat in the roots of the hair, and is believed to be attended by the growth of parasitic fungi; its predisposing causes are any derangement of the general health from ill or under-feeding, breathing impure air, drinking bad water, uncleanly habits, scrofula. Its immediate or exciting cause is generally contact with those affected with it, or using combs or hair-brushes which they have used.

Subdue first the irritation by such soothing means as warm poultices, etc., and then use an ointment composed of one drachm of sulphate of zinc to one ounce of simple cerate, using also a sulphate-of-zinc lotion. The head, from which the hair has been previously removed, by shaving or close cutting, should be washed with soap once a day, and, after being dried, anointed with pomatum, so as to keep the scalp moist with oleaginous matters. Another good application is, a solution of one drachm of nitrate of silver in half an ounce of diluted nitric acid. The diseased circles, after the scalp has been shaved, to be pencilled over with the solution, and in ten or fifteen minutes afterward the parts should be well sponged, first with tepid water, and then covered with pledgets of lint dipped in cold water, and the evaporation diminished by covering the wet linen with oiled silk. A lotion composed of a drachm of carbolic acid and an ounce of water is more effective perhaps than any other application.

Indeed, almost any astringent application will be found serviceable in this disease. Pyroligneous acid is used with great advantage, and black ink, which contains galls and sulphate of iron. Tar and

creosote are both recommended, and may be serviceable; but they are disagreeable applications, the former especially so, and certainly not better than many others which have not this objection; we should recommend their being used only as a last resource when the disease is very obstinate, as is sometimes the case. Rubbing the raised parts lightly with sulphate of copper, previously moistened, or washing them with a strong solution of nitrate of silver, or concentrated acetic acid, are the local applications of much value. For general or constitutional treatment we would recommend a tolerably generous diet with quinine or iron tonics, after the system has been cleared by a course of mild aperients and alteratives, such as rhubarb and gray powder, say three doses, according to age, one every other night, using any other means that may suggest themselves to strengthen and invigorate the patient.

The vesicular form of ringworm (that most commonly called ringworm) is the simplest and most amenable to treatment; sometimes it disappears after careful washing and poulticing, with, perhaps, a few applications of the carbolic acid lotion or the local application of castor-oil. But the pustular form treated above (and commonly designated scalled head) is far more troublesome and intractable, spreading often very rapidly, and running into ulcerous sores, and sometimes reappearing when it is thought that a cure has been effected. Nothing but the greatest care and attention will then eradicate it. Any child afflicted with this disease should be separated from other children, on account of its contagious nature; wearing each other's caps and bonnets will be likely to spread it through a whole school.

Shingles is an eruption which consists of vesicles in distinct clusters, upon inflamed bases, that extend a little beyond the margin of each cluster. It is generally preceded by such constitutional symptoms as loss of appetite, headache, cold chills, sickness, and accelerated pulse. Sometimes there are heat and pricking in the skin, and a sensation as though hot needles were thrust into it; or there may be a deep-seated pain in the chest. At times, however, the patient has no warning of this kind, and he is first made aware of the affection by the appearance of red patches, with small elevations, clustered together; these gradually enlarge, and become clear and glassy, being filled with a colorless lymph, which first turns milky, and then concretes into scabs. As the crusts fall off, and the eruption disappears at one part, it frequently shows itself in the immediate vicinity, and so gradually creeps all over the skin; sometimes there are a free discharge and ulceration. In some cases the clusters of eruption begin at the loins, and extend downward to the thighs and legs;

very commonly they form a sort of band round the waist, and hence, probably, the name given to the disease. From the twelfth to the fourteenth day is the time at which the scabs, if a cluster, may be expected to fall off, leaving the skin beneath red and tender, with little indented rings, where the vesicles have been. Generally the disease runs its course in about three weeks; it is not contagious, and may attack the same person more than once. Young persons between twelve and twenty-five years of age appear to be most subject to this disease, which, however, sometimes attacks aged people. Summer and autumn are the seasons when it most prevails; the cause of it is not very clear; probably it may arise from sudden changes of temperature, and chills taken when in a heated state. Give aperients to keep the bowels gently open, with a light and nutritious diet; effervescing draughts, made with bicarbonate of potash, instead of soda; if, as is sometimes the case, there is much pain, take Dover's powder at bedtime, from five to ten grains, according to age; bathe the eruptions with Goulard water, and dress them, when discharging, with zinc-ointment, spread upon lint; old persons will require tonics and change of air, but the young generally get over it without this; although, for all, a little strengthening medicine is desirable.

Eczema is an eruption of the most obstinate character. It appears in patches of minute vesicles, or watery pimples, in great numbers, close together. Sometimes the vesicles are so closely collected as to form one large inflamed surface. It favors those parts of the surface on which hair grows, and may run over the whole scalp. The vesicles dry up and form thin crusts and scales, or they burst and a thin watery fluid exudes. The eruption may be situated upon limited portions of the body, or in many places at the same time. The disease may be acute or chronic. Though its manifestation is strictly on the skin, it is a true constitutional disease. According to the severity of the case, the constitutional affection must be more or less actively treated. Without this, local or external applications will be of but little use. In the *acute* form the simple warm-water dressing of lint and oil silk, or local warm bath. Lotions of Goulard water, or, if this fail, solution of nitrate of silver of the strength of about four grains to the ounce of water. The itching may be relieved by the addition of laudanum to the lotion.

Chronic eczema, like most chronic skin-diseases, is a very obstinate malady, and will require variation in treatment. Any one or more of the following will be found useful in some cases, but not in others; therefore, if after a few days' trial benefit is not received, a change should be made: Corrosive-sublimate lotion consisting of a

quarter of a grain to the ounce of water ; white-precipitate ointment ; red-precipitate ointment ; tar-ointment ; sulphur-ointment ; mercurial ointment ; creosote lotion, alkaline lotions. Common chimney-soot sprinkled over the inflamed surface is a dirty remedy, but one that has been recommended ; it has, at all events, the merit of being always at hand.

Perhaps the most effective treatment is, to dress with a mixture of equal parts of powdered starch and glycerine, and, when there is a smooth, shining surface, apply oil of juniper. An effective plan of treatment is, to wash the part with a lotion of

Carbolic acid,	2 drachms,
Water,	2 ounces,

and to give at the same time a full dose of soda every day.

Ecthyma is a pustular eruption that occurs principally in the scrofulous, but may occur where the system is, from any cause, temporarily deranged. There is first a vesicle that bursts, and leaves a cup-shaped sore with well-defined edges.

Improve the state of the system with alteratives and tonics, and apply to the sores a weak solution of the nitrate of silver.

The common pimples that appear on the skin of persons whose stomachs are habitually deranged and overloaded, are the result of an irritation in the sebaceous glands. These glands secrete an unctuous matter, that, poured out in proper quantities, keeps the skin soft. They are situated in the skin, and are most numerous about the face and nose. Sometimes the orifices of these glands become black, and then they give to the face a very unsightly appearance ; on squeezing the skin around them, the fatty matter oozes out in the shape of a small worm with a black head, and this it is popularly thought to be ; but, although the matter itself is really not a creature, it is the habitat of a minute parasitic worm, which varies in size from 1-64th to 1-135th of an inch.

There are usually two, but often more, in the sebaceous contents of each follicle. They exist in the most healthy skins, although they do not cause any irritation and annoyance, unless they become unduly numerous. The irritation that causes the pimple to rise is a consequence of their increase. To prevent such a result as this, and the presentation of the unsightly "black heads," the face should be frequently washed in warm water, and well rubbed with a towel. Sometimes their appearance is attended with disorder of the stomach, which requires attention. Ladies hide these black heads with lily white. The penalty for this is that the glands themselves cease to

be effective in the performance of their office, and the skin becomes harsh, dry, and cracked.

The prepared chalk, so commonly used for the face in these cases, is carbonate of lime, and the human skin cannot be whitewashed with permanent advantage. It is a delusive remedy to prevent the vulgarity of a greasy skin by such means. The safer plan to make such faces presentable for given occasions is to neutralize the excess of oily matter that may be present, by washing the face with water to which a very little aqua ammonia is added, and then dusting with finely-powdered starch. This plan followed discreetly will be quite effective, and will never do harm.

The pearl powder is made of bismuth and French chalk, and is sometimes apt to change color on the face, especially if onions are eaten. The favorite wash known as Rowland's kalydor is made as follows:

Blanched bitter almonds,	1 ounce.
Rose-water,	16 ounces.

Rub the almonds down with the water, strain, and add eight grains of corrosive sublimate.

The harmless wash known as milk of roses is made as follows: •

Bitter almonds,	6 drachms.
Sweet almonds,	12 drachms.

Blanch and beat up in a mortar, with 1 drachm of Castile-soap. Add gradually:

Spermaceti,	15 grains.
White wax,	30 grains.
Almond-oil,	1 drachm.

Previously melted together.

When these are thoroughly mixed, add six drops of otto of roses, in six ounces of rose water, and after, fourteen ounces of distilled water.

It has been well said that the best cosmetic is a good temper; this, with cleanliness and obedience to the laws of nature and of health, will make a face more pleasant to look upon than all the artificial aids of paint, pomatum, kalydors, and lotions; better to see a few freckles and personal blemishes, than to mark the result of efforts to hide natural defects, which, after all, can be but partially successful, and which, however well intentioned, impress with a painful sense of an attempted imposition.

DANDRUFF (*Pityriasis*),

A chronic, squamous disease, in which there is a copious production of minute white scales that fall. This, like many other affections of

the skin, is rather troublesome and annoying than dangerous; it frequently occurs in children, and most commonly in the scalp, but sometimes, with persons of fair complexion, in the face also. The scales should at all times be removed by brushing and washing gently, so as not to irritate the skin, and the parts rubbed with common pomatum, or an ointment composed of red precipitate ten grains to one ounce of lard. Adults may use an alkaline wash like that recommended by Erasmus Wilson, which is: two ounces of solution of caustic potash, to eight ounces of rain or rose water.

A lotion of peculiar value in this disease is the following:

Sulphuret of potash,	. . . . .	2 drachms.
Water,	. . . . .	1 pint.

Dissolve. Apply with a sponge or brush.

It is scarcely possible to entirely overcome this disease without strict attention to keeping the stomach in order.

MALIGNANT PUSTULE.

This dangerous sore is the result of the contact of poisonous matter from diseased cattle. It may occur in those who labor among cattle, from direct contact of the hands conveying the poison to abraded spots on the face, or it may occur in those who are never near cattle, the poison in these cases being probably conveyed by flies or other winged insects. The poison excites a peculiar inflammation at the point of inoculation, and from this sore the system is contaminated, and death may result in from five to nine days.

The first appearance is a spot like a flea-bite, scarcely elevated above the skin, bluish in color, and itching excessively. From this a small vesicle rises, apt to be torn very early by the scratching, and leaving a scab on a red base. The scab is yellow, becoming brown and black, generally round and thin at the edges. Around the central vesicle or scab a circle of smaller vesicles forms—sometimes only a single circle, sometimes two or three concentric circles. The heat is increased locally sometimes to such degree as to give a burning sensation. Disturbance of the system comes on in about forty-eight hours; first, general uneasiness, coldness, depression, and then reaction, with fever. Sometimes there are internal hæmorrhages.

The treatment must at first be strictly local. Cauterization of the sore, with a view to destroying its virulence, is the earliest indication. Cut the sore open by a crucial incision, apply corrosive sublimate, or Vienna paste, freely, and cover with a plaster till the caustic substance shall have destroyed the deeper tissue of the pus-

tule. Lisfranc, in Paris, used the hot iron for the same purpose. Acids, the nitric or sulphuric, may be used, but are less certain. In countries where this disease is common, the corrosive sublimate is generally used.

Should general symptoms appear, give sulphite of soda freely, and sustain with brandy, ammonia, quinine, and beef-tea.

BOILS.

The seat of the boil is the true skin and the subjacent cellular membrane. A small, angry-looking spot on the outer skin first appears; this gradually enlarges into a swelling with a whitish conical centre, surrounded by a hard inflamed base; sooner or later this is sure to suppurate and discharge pus and blood, and a fibrous mass called a core; until this latter is ejected the abscess will not heal; it often lies deep, and causes great pain before coming away. Warm-water bathing, and poulticing with linseed-meal, is the proper treatment at first; resin ointment, or Venice turpentine, or some other drawing application of an irritating nature, is often applied, but it causes unnecessary pain, and effects no object that the poultice would not. As soon as the prominent part of the swelling becomes soft, a cut should be made with a knife or lancet through the skin beneath which the core lies; this permits the escape of the confined matter, and relieves the pain. The poultices should be continued until the core is drawn out, soon after which the healing process will commence; this may be facilitated by a dressing of simple cerate.

Boils and carbuncles have recently been successfully treated with the aqueous extract of opium, of which a thick solution has been painted on any suspicious spot; this forms a coating which must be renewed three or four times a day; twenty-four hours' application is said to be generally sufficient to arrest the spread of the inflammation. A plaster composed of equal parts of soap, opium, and mercury, spread on thick leather, is then placed on the spot, having a hole in the centre for the escape of any matter; if painful, a poultice must be applied. If, in spite of this treatment, the boil will have its course, strong nitric acid is the best application, using it freely two or three times, taking care to remove the slough before each application, supporting the margin with plaster and poulticing freely. The beneficial effects of the opium depend upon the soothing influence which it exerts upon the capillaries, small arteries, and nerves; its immediate effect is to lessen the throbbing, heat, and redness. The use of the plaster is to give support to the inflamed vessels, and to protect the surface from the atmosphere.

Boils often follow each other in rapid succession; they are very painful and troublesome, but not in themselves dangerous; they seldom run into ulcerations and deep-seated, sloughing sores, unless neglected; persons who are obliged to go about their daily avocations with them will do well to apply, during the day, a piece of lint saturated with olive-oil, and kept on with strapping. For internal treatment, those of a full habit should take three or four grains of blue-pill two or three times a week; with a senna-draught each morning after; they should also be abstemious in their diet, and avoid stimulants, particularly malt liquors. Delicate persons should take a compound rhubarb-pill every alternate night, or a draught composed of rhubarb and magnesia, ten grains of each in cinnamon-water; these should have generous diet. Decoction of sarsaparilla, half a tumblerful twice a day, and tepid baths, may be of service to such.

STYE.

This is an inflammatory tumor or boil in the eyelid. Delicate and unhealthy children are much subject to the affection, but sometimes adults, and even those in robust health, are liable to it. At first, there are a little irritation and itching in the upper or lower lid of the eye, but more frequently in the former; then there are redness and swelling, and a small boil is developed among the roots of the eyelashes; after two or three days this bursts, and matter escapes; a scab forms, which soon drops off, and probably in a few days there is no symptom remaining to mark the spot.

TREATMENT.—Commence by fomenting the eyelids, night and morning, with warm water, or decoction of poppies, but do not keep any application on for more than half an hour at a time; continue with this until the matter is formed and discharged; then, when the scab is formed, smear the margin of the lids, night and morning, with a little dilute citron-ointment, taking care that it does not go into the eye; this may be continued for a week or so, giving at the same time two grains of gray powder, with about five grains of rhubarb, every other night. Persons who are subject to styes should bathe their eyelids with a weak solution of salt in water every night and morning. A very pleasant form of poultice for the eye is the "alum-curd," made by throwing a piece of alum in a cup of boiling milk. Apply the coagulated portion on a cloth.

CARBUNCLE.

The carbuncle differs from the boil in having no central core, and in terminating by gangrene under the skin, instead of suppuration. It is usually situated on the back of the neck, or the shoulders, in

the interval between them, or the loins; a very common situation, for it is immediately below the occiput, on the very top of the neck where the integument is thickest. The causes of carbuncle are essentially similar to those of boils; external irritation of some kind is generally the immediate cause; although there must also be a predisposition to carbuncular inflammation, arising from a particular state and condition of the system, generally an excess of fibrin, or inflammatory matter, in the blood.

The first symptom of the disease is pain, followed by a hard, red swelling; very soon the surface of the tumor assumes a livid tint, and a soft, spongy feel; small ulcers form on the skin, and, from their numerous orifices, which give the surface a sieve-like appearance, flows out a thin, pasty discharge, which is characteristic of the disease. These openings quickly break into one, and then the discharge thickens as the dead cellular tissue begins to escape; to enable this to do so freely, an incision down to the very base of the tumor is made, and then crossed by another; the hæmorrhage attendant on this is commonly very considerable, as well as beneficial, in reducing the inflammation. Such is the mode of treatment usually adopted in carbuncle; warm bread or linseed-meal poultices are applied, both before and after the cutting; and, if the bleeding is excessive, port wine or decoction of oak-bark, with a little spirit, may be used to moisten them. The poulticing should be changed about every eight hours, and continued until the morbid matter is all discharged, and the wound is nearly filled with healthy granulations; when these have risen to the level of the surrounding skin, the wound may be dressed with the ointment of nitric oxide of mercury, or red-precipitate ointment, as it is more commonly called. The constitutional treatment in this case should first be of an antiphlogistic kind; aperient, and febrifuge medicines, and low diet; but, as soon as the carbuncle has been opened, and the discharge becomes copious, the patient's vigor must be sustained by good beef-tea, wine, and other nourishing condiments. Sometimes there is great prostration of strength, and as much stimulant is required as in typhus fever; quinine, opium, and ammonia, are commonly given to relieve the pain and arouse the nervous system. Persons of a full habit of body are those most subject to carbuncles, which are frequently fatal if they are situated high up in the neck, because they are usually attended with inflammation of the membranes of the brain. When on the back or loins, although frequently of enormous size, they are not so dangerous. Sir Astley Cooper has remarked, that he never saw a patient who recovered from carbuncle on the head; in such cases, there being always effusions in the brain.

CHILBLAINS.

An inflammatory affection of the skin, generally confined to the extremities, and especially the fingers and toes. Exposure to sudden alternations of heat and cold usually gives rise to these troublesome visitations, which are rather characterized by itching and irritation than pain. It seems probable that the disease is sometimes due to the mere contact of snow-water. Persons of scrofulous habit and languid circulation are most subject to them, as are children and aged persons. It is a popular fallacy that to keep the surface of the skin in a state of unnatural warmth, by hot bottles and woollen socks by night, and fur linings and feet-warmers by day, is the best way to prevent chilblains; but this only serves to keep up a constant perspiration, and so weakens the tone of the system, and increases the liability to them. A nightly foot-bath of cold, or, for aged persons, of tepid salt and water, with plenty of friction with a rough towel, and exercise during the day, will be most likely to keep chilblains from the feet; and for the hands, a careful rubbing so as to get them thoroughly dry after every washing or dipping in water, and an avoidance of all unnecessary exposure to severe cold, are the best preventive measures. It is a good plan to have a pan of oat-meal always at hand, and to rub them well over with that after they have been wetted and wiped as dry as possible; this will absorb any moisture left by the towel, and have a softening and cooling effect.

Should chilblains come, as sometimes they will, in spite of all precautions, let them be gently rubbed every night and morning with some stimulant application. Alcohol, brandy, spirits of turpentine, or camphorated spirits of wine, are all good for this purpose; but the application which will prove most efficacious is a lotion made of alum and sulphate of zinc: two drachms of each to half a pint of water, rubbed in warm; it may be made more stimulating by the addition of one ounce of camphorated spirits. When the chilblains are broken there must be a different course of treatment; the ulcers formed are often difficult to heal, especially in weakly and ill-conditioned persons; there is generally a great deal of inflammation which must be subdued by means of bread-and-water poultices applied cold, and afterward by cooling ointments, such as the cerate of acetate of lead, or spermaceti ointment, with forty drops of extract of Goulard added to the ounce; should there be a disposition to form proud flesh, the ointment of red precipitate should be used. The intolerable itching is best relieved by a lotion made of equal parts of laudanum and spirits of turpentine.

ITCH (*Scabies*).

A troublesome affection caused by a parasite, known as the itch insect, or, as naturalists term it, *Acarus scabiei*.

In its natural size, it is so minute as to be scarcely visible to the naked eye. The most prominent symptom of this disease is a constant and intolerable itching; it never comes on of itself, but is always the result of contact with an affected person. It first shows itself in an eruption of small vesicles filled with a clear watery fluid, occurring principally on the hand and wrist, and in those parts most exposed to friction, such as the spaces between the fingers, and the flexures of the joints, etc.; after a time it extends to the legs, arms, and trunk, but it rarely appears on the face. The insects are often found in the vesicles, but not always; hence, some have doubted whether they are really the cause of the disease.

The itch is never got rid of without medical treatment; but to that it will always yield, provided proper cleanliness be observed. Sulphur is the grand specific for it; it may be applied in the form of ointment, prepared as follows: Flowers of sulphur, two ounces; carbonate of potash, two drachms; lard, four ounces: to be rubbed well in wherever the eruption appears, every night and morning; washing it off with soap and flannel, before each fresh application. The most effectual plan is to anoint the whole body, from the nape of the neck to the soles of the feet, and out to the ends of the fingers; put on socks, drawers, flannel wrapper, and gloves, and so remain in bed for thirty-six hours, repeating the anointing operation twice during that time; then take a warm bath. In some cases alterative medicines may be necessary.

Another remedy, perhaps more absolutely certain, is the following:

Black oxide of manganese, 3 drachms.

Lard, 1 ounce.

Make an ointment, and apply as directed for the sulphur-ointment.

The following preparation is infallible:

Take of quicklime, 2 ounces.

Washed sulphur, 1 ounce.

Water, 10 ounces.

Boil the lime and sulphur in the water till they combine. Let it cool, pour off the liquor, and apply it with a cloth.

BARBERS' ITCH (*Sycosis*).

An inflammation of the hair-follicles, marked by successive eruptions of small pustules, whose granulated appearance bears some resemblance to the substance of a fig. It occurs on the chin and parts of the face where the beard grows, and is due to the development of a vegetable parasite.

The treatment requires the removal of all the hairs at the diseased spot by scissors or extraction, separation of all scabs or incrustations by poultices, and destruction of the parasitic plant by lotions.

Carbolic acid,	1 drachm.
Glycerine,	1 ounce.
Water,	8 ounces.
Mix, and use as a wash.	
Corrosive sublimate,	4 grains.
Distilled water,	3 ounces.
Dissolve for lotion.	
Sulphurous acid,	1 ounce.
Water,	7 ounces.
Mix.	

Any one of these will answer; sustain the system at the same time by good food and tonics, quinine, and cod-liver oil.

CORN.

These arise from a thickened state of the outer or scarf skin, caused generally by the pressure or friction of tight, or ill-fitting shoes; the sensible, that is, the true skin, feeling the pressure, endeavors to protect itself by throwing up a sort of defence, which assumes a conical form, having the apex within pressing upon the tender skin, and often causing intolerable pain, and sometimes inflammation to such an extent as to form an abscess at the point.

In the treatment of corns, the first object should be to remove the exciting cause; comfortable, well-fitting boots or shoes should be substituted for those of an opposite character, and the corn, after the feet have been soaked in warm water to soften it, should be pared carefully away, particular care being taken not to wound the more sensitive part. When the outer surface is removed, there will be perceived in the centre a small white spot, which should be carefully dug out with a pointed knife or pair of scissors. When this too is removed, cover the seat of the corn with a small circular piece of thick soft leather spread with soap or diachylon-plaster, and leaving a small hole in the centre, corresponding with that from whence the root of the corn has been taken. Should any of this latter remain

so as to cause irritation, apply to it, every second or third day, a piece of lunar caustic scraped to a point, and slightly moistened. Some persons apply strong acetic or other acid; but this is not so effectual, and more likely to cause inflammation, which will be best allayed by a warm poultice of bread-crumbs, moistened with Goulard water, the foot being held up as much as possible, and the system kept in a cool state with saline aperients.

Soft corns, which form chiefly between the toes, are often very painful and troublesome; let them be cut away as closely as possible with a pair of scissors and then dressed with rags wet with a solution of sugar of lead; ivy-leaves form, for such, a cool, pleasant protection from friction; they should be put on fresh every day.

Beneath the corner of the nail of the great toe a peculiar kind of corn sometimes occurs; it should be cut, or scraped out with the finger-nail, and caustic applied as above directed. Mere callosities of the skin on the hands and fingers are not corns, although often called so; they have no roots and are not painful; therefore it is best not to interfere with them, for if removed others would come in their places, while the friction is kept up in which they originate.

BUNION.

This painful and annoying swelling is the result of inflammation of a small bursa, situated just over the joint, at the ball of the great toe; the pressure of tight shoes is generally the exciting cause, and all such pressure should be at once removed. During the first stages, one or two leeches should be applied to the swelling, with warm fomentations and bread-poultices. A permanent enlargement of the part is generally the result, and this must be studied in taking measure for the boot. An application of caustic will sometimes reduce it considerably; it should be kept covered with Burgundy pitch, or soap-plaster, spread upon soft leather.

WARTS.

These are excrescences from the cutis or outer skin, or horny tumors formed upon it; they are not generally so painful as disagreeable and unsightly, coming nearly always upon the hands, or some other conspicuous place. The best treatment is to touch with some caustic or escharotic. Nitrate of silver is the most effectual, but this turns the skin black, which is in many cases very objectionable. Caustic potash will answer the purpose, so will acetic acid if of extra strength, and nitric acid. The application should be made daily, and the decayed part pared off, or cut with scissors. If it can be

conveniently done, a ligature of silk tied tightly round the base of the wart will cause it to decay.

BIRTH-MARKS AND MOLES.

Any process by which a mole may be removed from the skin will leave a mark worse than the mole. Attempts have been made to get rid of vascular birth-marks by exciting an inflammation at the place of specific character, as by vaccination. Here, also, a scar must necessarily be left, and even this means could not be effective, where the marks are so large as to be deformities. The difficulty, therefore, is, with both, that there is scarcely a desire for removal, except where they are deformities and in these cases, removal will leave deformities equally great.

BALDNESS—THE HAIR.

Falling of the hair may result either from age or disease, although, in the former case, the age may greatly vary in different individuals, some becoming bald before they arrive at the middle period of life. This kind of baldness, like the change of color in the hair, may often be observed to run in families, and to be, as it were, constitutional, and nothing can be done to check it; the commencement is always from the crown of the head, leaving a bare, shining spot, which spreads, with greater or less rapidity, over the whole scalp, rendering, in some cases, a wig absolutely necessary; whereas, if the baldness proceeds from disease, it may commence at the top, back, or sides, and at several places at once. In speaking of baldness from disease, we refer to that from some constitutional or skin disease, that affects permanently the roots of the hair, and not to that which occurs immediately after fever, which is apparently a natural process; the loss of the hair in those cases being only temporary.

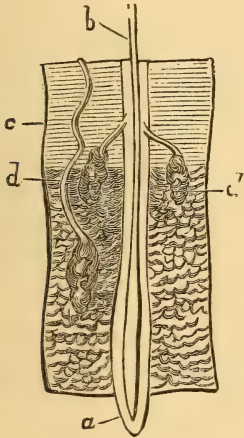
Hair is one of the common integuments of the body, consisting of dry, elastic filaments arising from the skin of all animals except fishes and reptiles, that is, of all warm-blooded animals. It grows in the cellular membrane, having a cylindrical root, surrounded by a capsule, with nerves, etc., which is called the bulb, and which is nourished by a fluid in the membrane.

Exclusive of the animal matter which forms the basis of hair, and which is the same in all, there is a coloring matter which is separable from it, and the hue of which varies according to the kind of hair, and to which the difference of tint is owing. To this fatty substance, also, physiologists attribute the suppleness, elasticity, and unalterability of hair, and also that it burns rapidly, and combines

with alkalis to form soap. All animal integuments, such as horns, nails, feathers, fur, wool, are, to a certain extent, supple and elastic, and all are formed of the same animal matter, and include in their composition a portion of this oil. It has been found that hair is soluble in water at a very high temperature; as in a Papin's Digester, where it leaves a residue of the oil above spoken of, mixed with sulphuret of iron, and some sulphuretted hydrogen, the iron being found most abundant in the darkest hair. Sulphur appears to be the ingredient on which the action of the black dyes of red or gray hairs depends.

The whole subject of the *growth* and *structure of the hair* is one of the most curious and interesting connected with our animal economy.

Hair grows, in greater or less degree, on all parts of the surface



The accompanying diagram will explain how the Hair is retained in the skin, and, if you examine it attentively, you will be able to understand the relative positions of the various parts. The diagram represents a section of the human scalp, showing the manner in which the Hair penetrates it: *a*, is the hair-follicle; *b*, the Hair within the follicle; *c*, the epidermis; *d d*, the sebaceous glands opening into the hair-follicle; *e*, the fatty tissue, with the cellular tissue underneath it, in which the base of the hair-follicle is embedded.

of the body, except the palms of the hands and the soles of the feet. It differs considerably in length, thickness, shape, and color, according to situation, race, family, sex, and age. As hair is a bad conductor of heat, it is obviously one of the most appropriate coverings for the bodies of animals, or the head of man, because heat escapes very slowly through it. The surface of the body is protected from the influence of excessive heat, moisture, and electricity, by means of the hair.

"The hair," says Mr. Paget, the eminent anatomist, "in its constant growth, serves, over and above its local purposes, for the advantage of the whole body, in that, as it grows, it removes from the blood the bisulphate of protein, and other constituents of its sub-

stance, which are thus excreted from the body." It is therefore evident that the hair performs an important part in the animal economy. It has been remarked that shaving or cutting the hair assists in the removal of carbon and hydrogen from the system; consequently long hair is injurious.

The texture of hair differs with the color. Flaxen is the finest, black is the coarsest. Hair becomes coarser as it gets gray. In a square inch of the skin of the head there are 598 black hairs, and 728 flaxen hairs. Race and climate influence the color.

MANAGEMENT OF THE HAIR.—Pass a fine-tooth comb, at regular intervals every twenty-four hours, through the hair, in order to keep it from matting or entangling. Separate the hairs carefully and repeatedly, so as to allow the air to pass through them for several minutes. Use a brush that will serve the double purpose of cleansing the scalp, and gently stimulating the hair-bulbs. Before going to bed, it will be desirable to part the hair evenly, so as to avoid false folds, or what is commonly called turning against the grain, which might even cause the hairs to break. Such are the ordinary requirements with regard to the management of the hair. Some persons carry to excess the dressing and adornment of the hair, especially those who are gifted with that of the finest quality—thus, for example, females who are in the habit, during the ordinary operations of the toilet, of dragging and twisting the hair, so as almost to draw the skin with it; the effect of which is, in the first instance, to break the hairs and fatigue the scalp, and finally to alter the bulb itself.

MANAGEMENT OF THE HAIR IN CHILDHOOD.—As this is an important branch of our present subject, future appearance and comfort depending greatly upon it, we shall devote some space to directions thereupon. Ablution and friction are the most requisite means for keeping the skin of the scalp in a healthy state, which is necessary to the proper growth of the hair. Remove the epidermis by washing and rubbing frequently. Once a day is not too often, although once a week is commonly thought often enough; and, where it is so, soap should be used, as simple water will not remove the tough and clogged epidermis which obstructs the growth of the hair. In the case of daily ablution there is no necessity for this; indeed it would be injurious, as it would remove too much of the oily matter by which this growth is encouraged and facilitated. By the too frequent application of soap, the hair is rendered dry and brittle. With proper attention to cleanliness, it needs very little of this, or any solvent of oil. For the long hair of girls, occasional washing with the yolk of an egg may be beneficial, and for all, a little grease is

necessary about every two or three days. This, although it does not act as a stimulant, as many suppose, adds to the growth of the hair, by allowing it to escape from its follicles, or secreting cavities. It may be rendered stimulating by the addition of cantharides, or spirit of ammonia, one or other of which is no doubt employed in the preparation of the celebrated Rowland's Macassar. As to the kind of grease to be used, it is really of little consequence; some animal oil is perhaps the best, the vegetable oils generally being too drying and heating. Bear's-grease is very good, although, not perhaps better than any other animal fat; hence the public do not suffer much by the pleasing delusion that they purchase this grease in the pots which are said to contain it.

But rubbing the scalp, and combing the hair, come before greasing, and both these operations should be regularly, frequently, and gently performed; if the towel be too rough, or the comb too sharp-pointed, or the brush too hard, there will result an improper degree of irritation, and this should be guarded against.

A change in the color of the hair may be produced by fever, or some other acute disease affecting the whole system, as well as by age; in the latter case it is gradual, and usually extends over many years; in the former it is more rapid, but not so much so as the change produced by some powerful emotions of the mind, fear especially, under the influence of which a person's hair has become perfectly blanched in the course of a few hours; from a darker color to gray or white is the most common change of color, but cases are on record in which the sudden alteration has been from black or brown to red, and even from brown to black. Why this sudden effect should be produced by strong mental emotion, we know not; if it were gradual, we might safely attribute it to a diminution of vital power, which is sure to ensue in the reaction after undue excitement. Such is the case in intemperance and other excesses, which often cause a change of color, if not a loss of the hair altogether. During and after pregnancy the head sometimes loses its natural covering; a stimulant application will generally cause it to grow again, especially if the patient recovers her health and strength. The following preparation for this purpose has been recommended as almost a complete specific:

Powdered cantharides,	1 ounce.
Purified spirits of turpentine,	3 ounces.
Neat's-foot oil,	5 ounces.

Put the first two ingredients into a bottle together, and let them stand for a fortnight; strain and add the last; shake up well, and apply to the head every night and morning.

For removing hair from any part, the following preparation is effective:

Quicklime and carbonate of potash, of each,	2 ounces.
Orris-powder,	1 ounce.

Mix and keep dry. When wanted, make a paste with water, and apply to the part, washing it off when dry.

POMADE.

Take of pure animal grease,	1 pound.
Nut-oil,	3½ ounces.
Spermaceti or white wax,	1½ ounces.

Melt the grease and spermaceti together. Add the oil, and pass the whole while warm through a cloth. Scent with any essence, rose, bergamot, or geranium.

DUPUYTREN'S POMADE.

Pure beef-marrow,	1 ounce.
Tinct. cantharides,	1 fluidounce.
Balsam of Peru,	3 drachms.
Sugar of lead,	1 drachm.
Oils of cloves and cinnamon, of each,	15 drops.

An excellent application where the hair is falling.

WASHES FOR THE HAIR.

Shampooing Liquor.

Rum,	3 quarts.
Water,	1 pint.
Tinct. cantharides,	½ ounce.
Carb. ammonia,	½ ounce.
Tartaric acid,	1 ounce.

Mix. Rub it on, and, after, wash with water.

Rosemary infusion,	1 gallon.
Water of ammonia,	1 ounce.
Tinct. cantharides,	2 ounces.
Glycerine,	4 ounces.

Apply with a sponge.

HAIR-DYE.

Solution of sulphuret of potassium,	1 drachm to 1 ounce of water.
Solution of nitrate of silver,	1 drachm to 1 ounce of water.

Moisten the hair with the potassium, and when it is dry add the nitrate of silver.

NAILS.

Like the hair, the nails may be regarded as a prolongation of the epidermis or outer skin. Much of the beauty of the hand depends on the state in which the nails are kept. Durlacher says, that, "ac-

cording to European fashion, they should be of an oval figure, transparent, without specks or ridges of any kind; the semilunar fold or white half-circle should be fully developed, and the pellicle or cuticle which forms the configuration around the root of the nails thin and well-defined, and, when properly arranged, should represent as nearly as possible the shape of a half-filbert. The proper arrangement of the nails is to cut them of an oval shape corresponding with the form of the finger; they should not be allowed to grow too long, as it is difficult to keep them clean; nor too short, as it allows the ends of the fingers to become flattened and enlarged by being pressed upward against the nails, and gives them a clumsy appearance. The epidermis which forms the semicircle around, and adheres to the nail, requires particular attention, as it is frequently dragged in with the growth, drawing the skin below the nail so tense as to cause it to crack and separate into what are called ag-nails, or, more properly, hag, or hangnails. This is easily remedied by carefully separating the skin from the nail by a blunt, half-round instrument. Many persons are in the habit of continually cutting the pellicle, in consequence of which it becomes exceedingly irregular, and often injurious to the growth of the nail. They also frequently pick under the nails with a pin, penknife, or the point of sharp scissors, with the intention of keeping them clean, by doing which they often loosen them, and occasion considerable injury. The nails should be cleaned with a brush, not too hard, and the semicircular skin should not be cutaway, but only loosened without touching the quick, the fingers being always dipped in tepid water, and the skin pushed back with a towel. This method, which should be practised daily, will keep the nails of a proper shape, prevent ag-nails, and the pellicles from thickening or becoming ragged. When the nails are naturally ragged, or ill-formed, the longitudinal ridges or fibres should be scraped and rubbed with lemon, afterward rinsed in water, and well dried with a towel; but if the nails are very thin, no benefit will be derived from scraping; on the contrary, it might cause them to split. If the nails grow more to one side than the other, they should be cut in such a manner as to make the point come as near as possible to the centre of the end of the finger."

The latter rule, however, will not apply to toe-nails; they should be cut nearly straight across, leaving the corners, which, in consequence of the pressure of the shoe, have always a tendency to grow in, as they often do, producing inflammation and ulceration, and becoming very troublesome and difficult to heal. Indeed, a bad ingrowing toe-nail is among the most troublesome of the minor

cases with which a surgeon has to deal; it can seldom be entirely cured without the removal of the nail, and, when this has become firmly embedded in the flesh, it is no easy matter to extract it; then there is danger of inflammation, mortification, tetanus, and a whole train of evil consequences; there is usually a fungoid growth in and about the part of the toe where the nail enters, and this must be destroyed by the free application of caustic; then, if the nail be scraped thin, the edge may probably be lifted out, so that a small piece of scraped lint, or carded cotton, can be placed under, and prevent its penetrating again, so as to irritate and keep up the inflammation. Most surgeons recommend the entire removal of the nail, or of that half of it to which the ingrowing edge belongs. The following mode of treating this painful and annoying complaint has been found successful: Procure a piece of silver, rolled out sufficiently thin to admit of being bent to the required shape, yet sufficiently firm to bear moderate pressure. This should be nearly the length of the nail, from a quarter to half-an-inch wide, and bent into somewhat of an S shape, or rather *a~b*. The lower end (*b*) is, by the aid of a pair of forceps, to be carried down between the overhanging ulcerated skin and the nail, and hooked under the rough edge of the latter. The upper end (*a*) is then carried outward, and secured in that position by a strip of plaster, and a bandage round the toe. By this means, the inverted edge of the nail and the skin are effectually kept from one another, and pressed in opposite directions. The nail is a little elevated, and the fungoid growth very soon shrinks under the pressure of the metal, and assumes a healing aspect. After several days a marked improvement will generally be found to have taken place, when the silver may be readjusted, and allowed to remain on a longer time. Gradually the ulcer heals, and the nail grows up in a more natural shape.

DISEASES OF THE BRAIN, SPINE, AND NERVOUS SYSTEM.

INFLAMMATION OF THE BRAIN.

SYMPTOMS.—Severe pain in the head, redness of the face and eyes, intolerance of light and sound, watchfulness, and ferocious delirium.

It often comes on with a sense of fulness in the head, flushing of the countenance, redness of the eyes, fulness of the pulse, and restlessness. Or it may make its attack with pain or a peculiar sense of uneasiness of the head, back, loins, and joints, or tremors of the limbs, and intolerable pains of the hands, feet, and legs; or with anxiety, and a sense of tension referred to the breast, with palpitation of the heart. As the disease advances, the pain greatly increases, and with it the redness of the face and eyes; the countenance acquires a peculiar fierceness, the patient talks incoherently, and delirium follows, and often arrives at a state of frenzy. The face becomes turgid, the eyes stare, and seem as if starting from their sockets; tears flow from them, the patient resembling a furious maniac, from whom it is often impossible to distinguish him, except by the shorter duration of the disease. The eyes are incapable of bearing the light, and the least noise is intolerable; respiration is deep, slow, and irregular, and swallowing difficult, the pulse being generally remarkably hard, small, and irregular.

An injury immediately applied to the brain, such as violent exercise, intoxication, rage, or the head being exposed long to a powerful sun; long and intense study; cold; fatigue; excessive venery; indigestible and poisonous substances received into the stomach; and the suppression of habitual discharges, and debilitating diseases, are the most frequent causes.

Inflammation of the brain is to be distinguished from inflammatory fever, by there being a much greater derangement in the mental functions and in all the organs of sense in the former than in the latter. In inflammation of the brain, the symptoms (as pain and heat of the head, etc.) denoting the local affection are often well marked before the pulse is much disturbed; in inflammatory fever, the pulse from the commencement is frequent, strong, and rapid.

TREATMENT.—Vigorous depleting measures are necessary. Commence in a vigorous person by a copious blood-letting from the temporal artery, jugular vein, or arm, through a large orifice, so that the blood may be rapidly extracted. Its extent and repetition must be regulated by the age and constitution of the patient, and by the severity of the symptoms; but the first bleeding should rarely be less than twenty ounces. This should be followed by the application to the head of cloths dipped in vinegar-and-water, or iced water, renewed as often as they show a tendency to become warm. The application of ice to the shaven head is here often of striking advantage. At the same time an active purgative medicine should be given, and a mixture of tartar-emetic containing a half-grain to a dose should be administered once in two hours.

During the whole course of the disease, the patient ought to be kept cool, and as quiet and undisturbed as possible, light being almost totally excluded. The diet should be toast and water. Cold acidulated liquors, as lemon or orange juice, mixed with water, should be allowed with freedom.

HYDROCEPHALUS.

Water on the brain is a common result of inflammation, but the disease is called by the above name, as it occurs in children, from a conviction that it is not always an inflammatory disease. Hydrocephalus seems, indeed, to arise in two exactly opposite states of the system: first, when there is hyperæmia of the brain; in this case it is inflammatory; next, when a drain in some other organ weakens the system and greatly reduces the quantity of blood that circulates in the brain. In this case the disease is irritative.

It often happens that, from ignorance of the premonitory symptoms, the disease advances too far before medical aid is sought, and means are adopted which, at an earlier period of its progress, might prove successful in warding off the disease. The principal premonitory symptoms are a capricious or defective appetite, and irregular or torpid bowels. The urine is high-colored and scanty; the skin harsh, and the complexion faded and unhealthy. Languor

and frequent drowsiness are often present, with disturbed sleep; there are, also, occasional attacks of giddiness and headache. The child loses its spirits, and becomes taciturn and grave. As the disease makes progress, the child, if not able to speak, may frequently put its hands to its head; the eyebrows are knit; there may be lameness or feebleness in its gait if it walks. The stomach begins to reject food, and vomiting soon forms one of the most obstinate symptoms. The bowels are disordered. The child grinds its teeth in sleep, sleeps with its eyes open, starts or wakes up in alarm.

There is, in children suffering under the affection of the brain, a sharp, short, peculiar, plaintive cry. The symptoms will usually be observed to be worse at night. The duration of the disease may be several weeks. If, as the disease progresses, the inflammation extends from the brain down the spinal cord, the body of the child becomes stiffly bowed backward. It usually terminates by convulsions, perhaps of one side only of the body, or of one limb only, and coma caused by effusion of serum on the surface of the brain; hence its name, "water on the brain."

There will always be, early in the disease, some of the following distinctive characteristics:

Change in the eye. It is intellectually dull; the pupil, at first smaller than natural, becomes greatly dilated; subsequently, the two pupils may be of different size, and the eyes do not act together; irregularity of the pulse, irregularity of the respiration, rolling of the head on the pillow, and clenching the fists convulsively, with the thumb inside. Headache, constipation, and vomiting, are symptoms whose coincidence should excite suspicion of this disease.

In treating this disease, it should be always at first determined whether the disease is of the inflammatory or the other class. If it is of the irritative form, and is treated for inflammation, the treatment will aggravate the troubles.

In the inflammatory variety of the disease, we must moderate and reduce the circulation through the brain; in the other variety, we must stimulate the same circulation. For the first form, apply cold water to the head. An efficient sedative is the letting cold water fall, drop by drop, upon the scalp, until the head remains cool on intermitting the operation. There is great danger in pushing this too far. Or an india-rubber water-cushion may be used for keeping the head cool: it should be filled to one-half only of its capacity with iced water, and the little patient's head laid upon it, so that the nape of the neck and the back of the head will lie on the middle of the cushion. As the fluid becomes warm, which usually

occurs in half an hour, the cushion should either be recharged with fresh iced-water, or replaced by another already charged. When the child expresses dislike to the cold cushion, it is the best indication that the period for using it without recharging it may be gradually extended, or that it may be altogether laid aside.

Give to a child, from one to ten years, one to two grains of calomel, combined with three times the quantity of powered jalap, and repeat or not as the symptoms increase in severity, or remain stationary.

In the irritative variety, that includes perhaps five in six of the cases, the real trouble is in the abdomen, not in the brain; the brain is only sympathetically irritated, and enfeebled by disorder of the liver and intestines. To a child in whom continued disorder of the bowels is suddenly followed by head-symptoms, give two grains of calomel and six of jalap, and in two hours begin with the following mixture:

Take of Epsom salts,	2 drachms.
Syrup of orange-peel,	2 drachms.
Caraway-water,	6 drachms.
Mix, and give two teaspoonfuls every hour to a child three years old, until the bowels act freely.	

After the bowels have been effectually opened by the preceding means, they must be kept so by giving through the succeeding days the following mixture, and every night two grains of gray powder and three of rhubarb, in jelly:

Take of nitrate of potash,	10 grains.
Epsom salts,	1 drachm.
Syrup of lemons,	3 drachms.
Distilled water,	9 drachms.
Mix, and give three teaspoonfuls, thrice a day, to a child two years old.	

By these means a free action on the bowels and kidneys may be secured, day by day, which is of the first consequence.

But with this treatment must be associated the more or less active use of stimulants or cordials to stimulate circulation in the head, for the fatal result of the abdominal disease occurs through exhaustion, inducing disease of the brain. The tincture of opium in doses too small to induce sleep stimulates in exactly the right way for the first stage of the disease. Aqua ammonia in doses of five or ten drops once in two hours, and five or ten drops of brandy in the interval, act well. Powder of ipecac. in grain-doses, given once or twice a day, will do more than any other single medicine to restore the intestines to right action. Never blister a child in either form of this disease.

The diet must be very simple, light, and cooling, consisting chiefly of barley-water, toast and water, and thin gruel. In raising the patient to take food, medicine, etc., all quick, rough movements must be carefully avoided. It is of no small importance that the patient should be kept perfectly quiet, and be seen by none but the few persons necessarily required to attend him, and that for some days after the disease has been subdued. In recovering, a return to the ordinary food must be made slowly and very cautiously.

Any appearance of precocity of intellect in the children of a family in which hydrocephalus has occurred should be checked; and parents ought to be fully aware of the hazard of too early, or too long-continued, mental application in such cases. The vigor of the body should be cherished, and the powers of the intellect left at fallow until the strength of the constitution is established. The utmost care must be taken to support the tone of the habit by mild, nutritious diet, daily exercise, and good air. Nothing is more important, in the management of children of a hydrocephalic tendency, than the daily examination of the evacuations. When these are pale, slimy, offensive, or in any way unusual, the child should receive immediate attention in this respect.

APOPLEXY.

There are two varieties of apoplexy, which are in general clearly marked, the one attended with a hard, full pulse and flushed countenance; the other with a feeble pulse and pale countenance. In the former, when the patient falls down in a state of insensibility, or stupor, out of which it is impossible to rouse him by any of the ordinary means, his face is generally red or purple, the breathing difficult and stertorous; the upper-lip margin is projected at each expiration; the veins of the head and temples protrude as though overfilled, the skin is covered with perspiration, and the eyes are fixed and blood-shot. In the second form, with the pale face, there is a look of misery and dejection, and the pulse, instead of being full and hard, is weak and intermitting. The former usually occurs in persons of a full, plethoric habit, and considerable energy and strength; the latter, for the most part, in the cold, phlegmatic, and feeble. Generally speaking, the latter form of the disease is the most dangerous, since, from the general failure of the energies of life, Nature has less ability to assist the use of our remedial measures. In other points of view, the degree of danger will be generally measured by the violence of the symptoms. In general, the shorter the fit the more favorable the prognosis.

Whatever operates in determining a great quantity of blood to the head, or in impeding a free return from it, may produce excessive distention or effusion within the cranium, and be, therefore, reckoned as exciting causes: such as violent passions of the mind, immoderate exercise, intense study, fits of intemperance, excessive straining, ligatures about the neck, the suppression of accustomed evacuations, as piles, etc., unrestrained indulgence of the appetite, and exposure to sudden and great heat, or to excessive cold.

Apoplexy is *distinguished* from epilepsy, or falling fits, by the presence of convulsions and contortions of the limbs in the latter, by the comparative shortness of the fit, and the greater facility with which the patient is roused.

In deep intoxication, the breath is in general tainted with the intoxicating liquor, and the patient may be in some degree roused by shouting in his ear, and by applying a strong stimulus to the nostrils. These will be without effect in apoplexy.

TREATMENT.—In a case of the first variety, so soon as the patient has been placed in a sitting position, with the legs depending, every thing about his neck removed, and the air freely admitted, a vein should be opened in the neck or arm, and the blood allowed to flow until the pulse is greatly reduced; a pallor in the face, and a generally relaxed state of the muscles, show that fainting is about to ensue. In a case of the other variety it is necessary also to relieve the neck of all pressure, to place the body upright, and admit air—but beyond this the treatment must be different; cold water should be dashed in the face, strong spirits of ammonia applied to the nostrils, and the feet put into a warm bath with a little mustard, and every means taken to arouse the patient from his state of lethargy; as soon as this is so far effected that he can swallow, give half a drachm of aromatic spirits of ammonia in one and a half ounces of camphor-mixture, as a stimulant draught, but it is only when the pulse is feeble and fluttering that the stimulant may be administered; this is the exceptional case in apoplexy; most commonly the symptoms are those first described, and if relieved at all it must be by free bleeding and other measures of depletion. Purgatives must be got down as soon as possible, ten grains of calomel placed on the tongue, and washed down with a black draught, or two or three drops of croton-oil may be rubbed on the back of the tongue, and a lavement composed of two tablespoonfuls of common salt, with a little oil or butter, and a pint of warm water; or a tablespoonful of soft soap mixed with the same quantity of water; or an ounce of spirits of turpentine, rubbed down with the yolk of an egg, and a pint of thin gruel: one of these should be repeated every two hours until some decided

effect is produced. Other means of relieving the system may be taken, should these fail, such as blisters behind the ears, to the nape of the neck, or calves of the legs; should the head be very hot, let it be shaved, and a cold lotion be applied to it.

Numerous cases of apoplexy occur where the symptoms depend upon irritation or loss of nervous power, and a deficient circulation of blood through the brain, and in which the loss of the smallest quantity of blood is always injurious, and invigorating means are indicated. This fact ought never to be lost sight of. There are many cases of apoplexy continually occurring, in which, at the time of seizure, there are present symptoms of deficient vital energy of the brain and constitution, although considerable corpulence may exist, or general appearance of strength; thus, *in the commencement of the attack, and before reaction has supervened*, the countenance may be pallid or sunk, the pulse of the arteries of the neck weak or small, the temperature of the head not greatly increased—and in such cases we must not bleed until reaction has followed, but administer gentle stimuli, as sal volatile and water internally, apply the volatile salts to the nose, and dash cold water freely over the head and face. After the patient has recovered a little, the face becomes flushed, and the arteries of the neck manifest an increased action, we may have recourse to bloodletting with great safety and advantage.

In all cases, after the crisis of the disease is over, and when the patient has become convalescent, it behooves him to be very careful, as a slight indiscretion may bring on a fresh attack.

The best plan of management, in order to escape from another attack, is to live almost entirely throughout future life upon vegetable food, and to abstain from wine, spirits, and malt-liquor. It will be of considerable advantage to avoid any strong or long-continued exertion of the mind. In some instances, when the full state of the vessels of the brain has for some time subsided, considerable advantage may be derived from the moderate use of tonic medicines, and more especially iron.

Apoplexy never comes without warning. However sudden the attack itself may be, there are certain premonitory symptoms which no prudent man will disregard; among these may be named a sense of fulness in the veins of the head, and a feeling of pressure in the head itself, with occasional darting pains, giddiness, vertigo, partial loss of memory, and the powers of vision, and of speech; numbness of the extremities, drowsiness, and a dread of falling down; irregularity in the action of the bowels, and involuntary passage of urine. These all indicate that some internal mischief is going on, and, if

their warning is attended to, the threatened attack may, perhaps, be avoided. Persons whose full habit of body and modes of life predispose them to this disease should, when such warnings reach them, live sparingly, avoid stimulants, especially fermented and spirituous liquors, take regular and moderate exercise, sleep on a firm pillow with the head elevated, and nothing round the neck to impede the act of breathing. Keep the bowels regulated by an occasional dose of colocynth and calomel pills, and saline purgatives. Those of a spare habit should take light, although nourishing diet, a little beer or wine, if they have been accustomed to it, and it does not affect the head; spirituous liquors and hot spices should be avoided, and great bodily fatigue or nervous excitement of any kind.

PARALYSIS OR PALSY.

Paralysis is a loss of the power of motion and sensibility in certain parts of the body. Sometimes the powers of voluntary motion alone are affected in any considerable degree, while those of sensation are only rendered a little more obtuse; at other times, however, both kinds are equally torpid, and sometimes several of the faculties of the mind participate in the debility. It usually comes on with a sudden, though slight, loss of the power of motion in the parts affected, which is frequently preceded by a numbness, coldness, and paleness, and sometimes by convulsive twitches. In some cases, this loss of motive power continues to increase till it becomes complete; in others, it is stationary and partial. When the head is much affected, there is distortion of the features, the memory and judgment are impaired, and the speech is indistinct and incoherent. If the disease affects the limbs, and has been of long duration, it produces a considerable flaccidity and wasting in the muscles of the parts, and thus causes its own perpetuation.

The progress of the disease is uncertain. If there be no chronic debility, or other morbid condition of the brain, the patient will sometimes recover entirely in a week, or even less; but, if this system, or some particular part of it, be in an infirm state, he recovers only imperfectly, and obtains, perhaps, a thorough or a limited use of the lower limb, while the upper remains immovable; or he is compelled to pass the remainder of a painful existence with only one-half of his body subservient to his will.

One common cause of paralysis is pressure upon or disease of the brain or spinal cord. The exact seat of the disease, whether in the brain or spine, can only be determined by knowledge of the anatomical relations of the paralyzed nerves. But paralysis often occurs

where there is no organic disease of either brain or spine, but only an irritation of these due to disease in other organs, as the stomach, heart, kidneys, womb. Gout and rheumatism are frequent causes of paralysis. Some physicians hold that the greater number of cases of paralysis are of this nature. These are the most favorable cases.

TREATMENT.—Determine first the nature of the case. Is it of the “reflected” kind, due to irritation in a distant organ, or does it depend upon actual spinal or brain disease. Chronic inflammation of the uterus, change of position of the uterus, cancer in the uterus or rectum, hysteria, disease of the kidneys, bladder, stomach, may any of them cause paralysis, and, if any of these are present, they alone are probably the source of the mischief, and a cure can only result from effective treatment of these diseases. Syphilis, rheumatism, gout, and the poison of mercury and lead (as in painters), induce paralysis also; and it is useless, for these forms, to direct our activities toward a supposed change in the brain or spine.

In spinal or cerebral paralysis, the proper treatment, in the case of a patient of a full habit, will be bleeding and cupping in the neck, and strong purgatives, about five grains of calomel, followed by senna-mixture, or croton-oil pills every four hours, until they operate freely; when there are faintness and confusion of intellect, give a teaspoonful of sal volatile in a glass of water, and repeat it in an hour if required; no alcoholic stimulant must be administered; put the feet and legs in a hot mustard-bath, and place the patient in a warm bed, with the head and shoulders well raised. Follow up the cupping in the neck with a blister, and, after that, put in a seton, if required; after they have once acted well, keep the bowels gently open with rhubarb or castor-oil; let the diet be spare, and the quietude of the patient as perfect as possible. After the acute stage of the disease has passed, local stimulants should be used, and the affected parts well rubbed with the hand, or a flesh-brush. Electricity and galvanism may also be employed, where there is no reason to suspect structural disorganization. In paraplegia it is often very difficult to get the bladder to act; and, when it does, the urine flows from it involuntarily; great attention should be paid to this, and stimulant diuretics given; the tincture of cantharides, in half-drachm doses, is perhaps the best.

In some cases, much relief has been afforded by the use of sulphur-baths and chalybeate waters, such as those of Harrowgate and Baden. Mercury, which is strongly recommended by some, is but a doubtful remedy. Strychnia has proved serviceable, but should only be given in exceedingly small quantities. Put one grain in a mixture for thirty doses. Repeated moxæ along the course of the

spine, and small blisters on the insides of the legs and thighs, are recommended by Dr. Graves.

Painters' colic is a common prelude to paralysis, resulting from the absorption of lead into the system; its symptoms are similar to those of colic generally, with partial paralysis superadded; sometimes this latter symptom will show itself while the patient is in an average state of health, and previous to or conjointly with the writhing pains in the stomach, cramp in the legs, and pains in the head and limbs; but more frequently there will be two or three attacks of the colic before the paralysis comes on.

Put the feet and legs in a mustard-bath, and give a full dose of calomel and opium, followed in about an hour with one of castor-oil; the injection of warm water into the bowels frequently affords great relief; if they are not freely opened by the above means, stronger purgatives should be given, such as colocynth and calomel, or one drop of croton-oil with castor-oil. Active and continued purgation carries the absorbed lead out of the system. From the first or second attack of painters' colic persons generally recover; but, unless the occupation is changed, other attacks will follow, and the patient will become a miserable cripple.

Shaking palsy is a form of paralysis in which to loss of power are added loss of control and tendency to involuntary movements of the muscles. Tonics are the only remedies of any value.

EPILEPSY.

This disease comes on at irregular periods, and the attack is for the most part sudden, and without any warning; the patient may be about his ordinary occupation, or talking cheerfully with his friends, who are perhaps startled by a loud and fearful cry; a convulsive spasm passes over the face, which is drawn on one side, the lower part of it being turned to one shoulder; the eyes are set and staring, or rolling wildly in the head; the color of the skin becomes dark and livid, and the veins swollen and turgid; there are frothing at the mouth and a kind of choking noise in the throat; all control over the limbs is lost, and the body falls to the ground unless supported. Sometimes the arms are thrown about at random, while the fingers clutch at whatever comes in their way, digging the nails deeply into it, if a soft substance; the tongue is bitten through by the teeth, and the struggle, as against some invisible enemy, is frightful to look upon. After a shorter or longer period, the convulsive movements gradually diminish, and the patient seems to recover a faint glimmering of consciousness, but the look which he

casts around is stupid and heavy, and he goes off into a lethargic sleep, from which he does not awake for some hours; even when he does, his mental perceptions appear to be very much blunted, and it may be days before he fully recovers from the effects of the attack. He does not remember the fit. This is a severe form of epilepsy. It occurs in milder forms, and is sometimes so light as to cause only a temporary inconvenience. That there is no warning of the attack should be understood to apply to lookers-on; for the patient is generally aware when one is impending, by certain symptoms, which, after the occurrence of one or two paroxysms, he knows how to distinguish. These symptoms vary, according to constitution and temperament; they may be lowness of spirits, with unusual irritability, diminution or increase of energy, dizziness, noises in the ear, specks floating before the eyes; but the most marked symptom is called the "epileptic aura," a kind of creeping sensation, felt first at the extremity of a limb, and then gradually extending over the whole body, and into the head.

The involuntary laughing or weeping, and the sensation of a globe rising in the throat, which accompany hysterics, will sufficiently distinguish this disease from epilepsy. (For the signs distinguishing it from apoplexy, see that article.)

In epilepsy there is always a diseased state or disorder of the brain, or spinal marrow; and, this predisposing cause present, various circumstances may excite the fit, as sudden alarm, great sorrow, indulgence of appetite, suppression of discharges, use of liquor, any irritation in the stomach or intestines, as tape-worm, and heart-disease.

When the fit is actually present, the patient should be placed on a bed or sofa, the head somewhat raised, and those parts of the dress removed that are likely to press upon the vessels of the neck. In order to prevent the tongue being injured by the spasmodic action of the muscles of the jaws, a piece of soft wood, or a napkin properly rolled up, should be introduced between the teeth. Do not apply acrid stimulants to the mouth and nose.

Nearly every remedy known to the *materia medica* has been tried in this disease, and every one is condemned for failure and lauded for success. But little can be done by domestic application of medicines, and yet the domestic practice is perhaps the most important part of any curative plan, since it consists, above all, in so ordering the patient's daily life as to prevent, so far as may be possible, the exciting causes that give rise to the fits. Any one soon finds out this exciting cause in his own case. A woman, for instance, knows that, if her courses come two or three days later than the proper time, she will have a fit. A man knows that excessive fatigue, over-indul-

gence of sleep, or giving way to the demands of some particular appetite, provokes a paroxysm. All this extensive part of the treatment is completely in the patient's hands, and, if he will not attend to it, no other can.

Beyond this, remedies that prevent spinal or cerebral congestions are the only ones of any permanent value. Bromide of potassium, ergot, and belladonna, are the best of these. Belladonna may be given for a long time together, in doses of one-sixth of a grain of the extract, or even less. Give the bromide of potassium in doses of twenty to forty grains twice a day.

HYSTERIA.

This is almost exclusively a disease of girls and women, but boys and young men of effeminate organization are sometimes afflicted by it. It originates in a diseased or disordered state of the reproductive organs, though to the ordinary observer there may be no very evident sign of this. The disorder may be only an undue excitability of function, or there may be organic disease. All the morbid manifestations appear in irregularities of nervous action, and through these vagaries hysteria is apt to assume the character of nearly every other known disease. Paralysis of one or both arms, or legs, or of the bladder, may have no other cause. Insensibility to pain is very common with it, and undue sensitiveness to pain equally so. This latter causes the victim to associate her disease with some part of the body that may be quite healthy. She will complain of pain in the side, and this pain has been treated as pleurisy; of pain in joints, and this has been treated as inflammation; and hip-joint disease. Women have been operated upon for stone in consequence of their complaints of trouble in the bladder, when the disease was hysteria. Ordinarily these errors may be avoided by noting the absence of inflammation and fever, and the character of the patient.

The common appearance of the disease is in the hysteric fit, but it sometimes makes its invasion in a less evident way. The hysteric fit may be so violent as to be confounded with epilepsy. In epilepsy the fit comes on immediately, and the loss of consciousness occurs at once. The hysteric fit gives warning. There is an uneasy feeling as of something wrong, an altered manner, and the sensation of a ball in the throat (*globus hystericus*) is constant. This feeling is caused by a spasm of the œsophagus. The spasm closes that canal gradually from below upward, and thus gives rise to the thought that it is closed by some foreign body. "Nervous people" say they feel the heart in the throat, and this is an analogous effect. The hysteric fit is apt to follow some mental excitement, as fright, disap-

pointment, or distressing grief. There may be laughter, or tears, equally without reason, and plaintive cries, and convulsive movements of greater or less severity; cries are more likely to close the fit than begin it. At the close there is a considerable flow of limpid urine. Altogether the general aspect of one in an hysterical fit has not the frightful character of epilepsy. It much more resembles maudlin drunkenness; and this resemblance is so striking, that it is difficult for the most positive assertion to silence the uncharitable speeches of chance spectators.

In the non-convulsive form of the hysterical fit, the woman simply has "a bad spell." She feels as if she would faint, her face flushes, or becomes ghastly, and she is oppressed and prostrate; and from an access of this character she may remain ill for some days, lying like one in fever, except that she has no fever. An access of this sort is more apt to aggravate from time to time the state of a woman who is permanently the victim of hysteria.

TREATMENT.—Remember that the hysterical fit is usually more alarming than dangerous. Give an adult from twenty drops to a teaspoonful of the compound spirit of ether, and force a tumblerful of ice-cold water down the throat, holding the teeth apart with the corner of a folded napkin. Camphor will do to replace the ether in an emergency, but is less effective. Spirits of hartshorn will answer the same purpose. This may also be applied to the nostrils. Take care, however, not to keep it there too long. If the disease should prove to be epilepsy, the unconscious victim will not push the bottle away, and the continued inhalation of the irritant gas will cause inflammation. Remedies of this sort will break up or shorten the fit. In the non-convulsive form make a less vigorous use of the same remedies as the "bad spell" comes on.

In the interval of the fits treat the hysterical condition. Much may be done by a proper regulation of the patient's life. Occupation, moderate exercise, good but not rich diet, and the adoption of stringent rules in regard to sleep, and the time spent in bed, are the principal points in the case. The patient should be permitted to remain in bed only while actually in sound sleep. There should be a regular use of the cold bath. Keep the bowels open with a simple aperient, and give nervines and tonics. The best tonic is the carbonate of iron in the mixture called Valet's mass. This may be made into pills of three grains each, and from six to twelve of these should be taken daily for months together. Give the ammoniated tincture of valerian in doses of half a drachm once in three hours. An efficient mixture, for warding off the fits where constant recurrence seems imminent, is the following:

Ammoniated tincture of valerian,	1 ounce.
Spirits of camphor,	4 drachms.
Tincture of ginger,	4 drachms.

Mix. Give a teaspoonful every three hours.

Tincture of ginger should be added to all mixtures given in hysteria, as a constant cause of the aggravation of the disease is the gas that accumulates in the intestine. Should the mixture seem to lose its effect, give the following pill:

Extract of belladonna,	2 grains.
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Make ten pills. One to be taken every four hours.

This will permanently control the access. Indeed, it is held by some physicians to be an absolute cure.

Even after the immediately curative treatment is laid aside, adhere to the regulations for the patient's habits, and give vegetable tonics—gentian, calumbo, and chiretta.

CATALEPSY (*Trance, Ecstasy*).

There is sudden deprivation of sense, intelligence, and voluntary motion, the patient remaining in the same position, during the paroxysm, as at the moment of attack, or as placed in during its continuance; the pulse and respiration little affected, or so feeble as scarcely to be perceptible. The eyes fixed, open or shut; pupils contracting on the application of a strong light. The evacuations are either suspended during the fit, or passed involuntarily. Restoration generally occurs suddenly; with headache, sense of fatigue, etc. No recollection of what has occurred in the fit. The suspended train of ideas resumed at the moment of recovery. Terminates in health; sometimes, however, in insanity. Preceded by mental excitement of a religious or other character, it constitutes *ecstasy*.

The hysterical or melancholic temperament predisposes to this disease, and it is excited by depressing passions; prolonged or violent mental impression; anxiety; unrequited affection; religious contemplation.

TREATMENT.—Sprinkling or dashing with cold water; stimulants, such as ether or sal volatile; friction and counter-irritation to spine or extremities. After the fit, tonics should be taken for some time. Regard it, for purpose of treatment, as a form of hysteria.

LOW SPIRITS (*Hypochondriasis*).

This is a state of mind generally associated with dyspepsia, in which all kinds of imaginary evils are conjured up, and the slightest

pain, or unusual feeling, is looked upon as the precursor of some dreadful malady; persons so affected always fancy themselves on the verge of danger, and hence are fearful and irresolute in the steps they are called upon to take; they may be of sound mind in other respects, but in regard to their own bodily state and condition are decidedly monomaniacs. The affection appears to depend upon a want of energy in the brain, the causes of which are various: it may arise from intense study, some great stroke of affliction, indolence and inactivity, or indulgence in venereal or other excesses, or deranged digestion. In either case the patient should be treated with gentleness and consideration, so as to show that interest is taken in his welfare; he can never be either laughed or forced out of his delusion, therefore the endeavor should be made to direct his attention—to take him out of himself as it were. Change of scene, cheerful society, engaging the mind in some art or pursuit, which, although not too laborious, requires the use of the mental powers, exercise, tepid and shower baths, are among the remedial measures in this case. The bodily health must be carefully watched and preserved by such means as may be necessary.

CHOREA (*St. Vitus's Dance*).

After some time of indefinite ill-health, such as derangements of the stomach and bowels, diminished activity, fretfulness, etc., irregular movements of the voluntary muscles are observed. Twitchings, etc., of the muscles of the face are probably first noticed. The ordinary movements of the arms and legs become interfered with by involuntary jerking of the muscles, so that the patient has a jumping, starting, or palsied walk. Speech and articulation become difficult, the mouth distorted, the eyes roll about, and as the disease becomes confirmed the movements of the limbs are convulsive and grotesque. The bowels are generally costive.

This disease is much more frequently seen in girls than in boys. Its most common period of life is from seven to fifteen years; but it may occur later. Nervous temperament; hereditary predisposition; any thing that causes general debility or depression of the vital powers, as excessive or premature exertion of the intellect, affections, or passions; derangements of the digestive organs; insufficient diet; impure air; any one of these may predispose the system to this disease. The exciting causes are: fright; irritation of worms; irritation of cutting the permanent teeth; rheumatic fever; the influence of imagination; concealed mental emotions; costiveness; irregular or retarded menstruation.

Continued administration of moderately active purgative medi

cines, as rhubarb, senna, or jalap, or podophyllin in very small doses—quarter of a grain—will generally relieve. Give also metallic tonics.

Take of sulphate of zinc, 20 grains.
Extract of gentian, $\frac{1}{4}$ drachm.

Mix, and divide into twenty pills; three to be taken in the course of each day.

An effective remedy is the tincture of *cimicifuga* in doses of twenty to forty drops, three or four times a day.

The calabar-bean is recommended for its efficacy, but it is a dangerous agent.

CONVULSIONS.

The chief *symptoms* of convulsions are violent spasmodic affections, with or without intermission. Previous to their coming on there are generally giddiness, coldness of the extremities, dimness of vision, tremblings, and a creeping chill up the spine. When the fit is on, the teeth chatter, the tongue is protruded, and often bitten, there is foaming at the mouth, the eyes roll wildly, there is a struggle for breath, and a clutching of the hands.

The cause of convulsions is always an irritation in some vital part of the system, the intestines, the womb—or poison in the blood (uræmia), due to disease of the kidneys.

During the fit, take the same precautions as are laid down for epilepsy. Pour cold water on the head, but moderately. If this is done while the body is in a warm bath, it will be more effective. Give an active purgative, as croton-oil, one or two drops, on butter placed far back on the tongue. Give chloroform, by inhalation, in small quantity.

LOCKED JAW (*Tetanus*).

Violent painful spasms of the muscles of the body, limbs, or throat and jaws, producing a state of rigidity, which resists every attempt to bend the joints, constitute the essential fact. This rigidity is continuous, and without intervals of relaxation. The mind is unimpaired, and the sensibility of the surface remains in its natural state, or may even be exalted, so that to touch any part shall produce great aggravation of the painful muscular action. Sometimes those muscles only which hold the body upright are affected, and the body is then bent backward; in other instances the body is bowed firmly forward. The trunk is so rigid that it may be raised to the feet without the joints yielding. In children locked jaw sometimes occurs without spasm of other muscles. A temporary locked jaw often occurs from cold, or from inflammation of the ligaments

following the extraction of a tooth. The disease generally begins with severe spasms about the chest and neck, recurring at short intervals.

Wounds, scratches, and other injuries, excite irritation of nerves, that in turn excite the spine. A hot climate predisposes; but it is also met with in temperate climates. It is very rarely known to occur without some wound or injury; sometimes, especially with children, however, it originates from irritating matters in the intestines, or from some morbid condition of the nervous system.

TREATMENT.—Strong purgatives, such as turpentine and castor-oil, or croton-oil; and one or two grains of opium, repeated at regular intervals of from four to six hours. Large quantities of opium are sometimes borne without harm in this disease. Carbonate of ammonia, and sulphate of quinine and wine or brandy, are active and useful remedies. But, as the malady is one of a very dangerous character, medical advice should be sought at any inconvenience. Perhaps the most promising plan of treatment for domestic use is, to give very large doses of the bromide of potassium, say twenty to sixty grains every two hours. Some cures have been made with tobacco, and some with aconite, and still others with the calabar-bean.

Temporary locked jaw, caused by inflammation of the joint arising from diseases of the teeth, etc., is relieved by leeching, and blistering, and the subsequent application of tincture of iodine.

NEURALGIA

This is a painful affection of the nerves: when it occurs in those of the face, it is termed face *ague*, or *tic-douloureux*; when it affects the great nerve of the leg, it is called *sciatica*; other parts, such as the fingers, the chest, the abdomen, etc., are also liable to this agonizing pain, one of the most severe and wearing to which the human frame is liable; the exact nature of it is not very clear; that is to say, the origin of the disease, for although its immediate seat is a nerve, or set of nerves, yet there must be some originating cause. It can frequently be traced to some decay, or diseased growth of the bone about those parts through which the nerves pass; and in some severe cases it has been found to depend upon the irritation caused by foreign bodies acting upon those highly-sensitive organs. The only symptom of neuralgia, generally, is a violent darting and plunging pain, which comes on in paroxysms; except in very severe and protracted cases, there is no outward redness, nor swelling, to mark the seat of the pain, neither is there

usually constitutional derangement, other than that which may be caused by want of rest, and the extreme agony of the suffering while it lasts, which may be from one to two or three hours, or even more, but it is not commonly so long. Tenderness and swelling of the part sometimes occur, where there has been a frequent recurrence and long continuance of the pain, which leaves the patient, in most cases, as suddenly as it comes on; its periodic returns and remissions, and absence of inflammatory symptoms, are distinctive marks of the disease. Among its exciting causes, we may mention exposure to damp and cold, especially if combined with malaria; and to these influences a person with a debilitated constitution will be more subject than another. Anxiety of mind will sometimes bring it on, and so will a disordered state of the stomach, more particularly a state in which there is too much acid.

As for treatment, that of course must depend upon the cause: if it is a decayed tooth, which, by its exposure of the nerve to the action of the atmosphere, sets up this pain, it should be at once removed, as there will be little peace for the patient until it is; if co-existent with neuralgia there is a disordered stomach, efforts should be made to correct the disorder there. If the patient is living in a moist, low situation, he should at once be removed to a higher level, and a dry, gravelly soil. Tonics, such as quinine and iron, should be given, and a tolerably generous diet, but without excess of any kind. Give the sulphate of quinine, two or three grains a day, and the carbonate of iron in much larger doses—six to twelve grains three times a day in pills—or the powder may be taken a teaspoonful at a time, stirred in water. This is the best cure for nearly all forms of neuralgia. Applications to the surface, over the seat of the pain, often give ease; apply chloroform and tincture of aconite, equal parts, on a cloth, or, for facial neuralgia, rub veratrine ointment behind the ear, and at the angle of the jaw. Aconitine ointment may be used in the same way; or the tincture of belladonna. For facial neuralgia use the following:

Ext. belladonnæ,	2 grains.
Make ten pills. Give one pill an hour till the pain is relieved.	

Or this,

Musk,	10 grains.
Sulphate of quinine,	10 grains.
Ext. digitalis,	5 grains.
Make into ten pills. Give two a day.	

This is useful in any form of neuralgia.

INSANITY.

There are two general forms of insanity: one is characterized by an unrestrained irritability, which urges on the patient in an extravagant pursuit of something real or imaginary, to the ruin of himself, or annoyance of his friends, and ultimately leads him, if opposed in his disordered wishes, to acts of extreme violence. This is mania, the common varieties of which are monomania, and simple raving madness.

The other is marked by an unusual depression, sometimes amounting to despair, a loathing of life, and every thing connected with it, accompanied too often by an uncontrollable effort of the patient to rescue himself, by his own hand, from his real or imaginary distresses. This is melancholia, and sometimes dementia.

There is a variety of insanity marked by the alternation of these two forms in the same cases; the reaction from a fit of mania running into melancholia.

The passions and emotions most productive of insanity are love, fear, fright, rage, ambition, reverse of fortune, and, the greatest of all, domestic chagrin, or family dissension. The combination of moral and physical causes is much more commonly the origin of insanity than either of them singly. The popular notion is that the moral causes prevail alone in producing insanity; but this is an error: bodily disease, more or less positive and perceptible, is always present, either disease of the brain itself, or disease of some organ that by sympathy disorders the brain. The causes of insanity do not always act directly on the brain; frequently, on the contrary, they are preying on some organ at a distance; the nervous, sanguineous, or lymphatic systems, the digestive organs, or the organs of generation, being the primary seats of the evil. M. Pinel, the distinguished French physician, refers the immediate cause, in almost every instance, to a deranged condition of the stomach and other digestive organs. It is here he supposes the disease to commence, and contends that the affection of the brain, and of the mental faculties, is subsequent to the symptoms of internal irritation, and dependent upon them. This opinion in some degree corresponds with the results of all experience; we must not, however, lose sight of the influence of the relative size and mutual effect of particular organs upon one another due to inherited peculiarities. Mental derangement, therefore, is mostly a symptom of disease in the brain, either slight or severe; but then that cerebral disease may itself be excited only by disease in some other organ, and it will be always much influenced by the patient's general health, so that, if the

person in whom there is cerebral disease pursues a proper course of living, and can have his digestive functions and the secretions of other organs brought into and kept in a healthy state, he will usually escape insanity. It is a fundamental principle, that the brain is the organ of the mind—the mind never manifests itself in this world except through the instrumentality of this corporeal organ, and therefore the condition of this organ must always influence the quality of the mental manifestations.

The onset of mania is characterized by a manifestation of unusual vigor of mind and body, but it is all manifested in a wild, irregular way, without adequate cause, a reckless indifference to restraints, incessant talking, singing, shouting, obscene language and gestures; sometimes excruciating pain, denoted by frequent change of postures, beating the forehead, breast, stomach, sides, or belly; eructations of wind from the stomach, of a very peculiar fœtor; high-colored urine; delirium. The skin is dry, harsh, and cold, sometimes with partial, cold, and clammy perspirations; breath hot and offensive; hurried respiration. If the patient vomits, there may be seen in the matter unaltered portions of the food taken several days before.

The symptoms in a well-marked case of melancholy are great apathy; obstinate disposition to dwell upon some mournful topic; sleeplessness, pertinacious silence, and other symptoms of morbid intensity of thought; the pupils of the eye dilated, with a peculiar dull, muddy look, often employed in a fixed, unmeaning stare or vacancy; general slight nervous thrilling of the muscular powers; anxious solicitude, and importance attached to frivolous inconveniences, especially regarding the sufferer's health; love of solitude; dread of death. In general, there are well-marked symptoms of indigestion, such as pallid complexion, dull eye, languid circulation, loss of appetite, furred tongue, disturbed and restless nights, sometimes attended with fever, debility, frequent sighing. This form is seldom seen in the young, unless inherited, or unless it follows some debilitating disease, as typhoid fever.

TREATMENT.—From the view that all cases of insanity depend upon bodily disease, it results that much more can be accomplished by treatment in this malady than is popularly thought. Half the hopelessly insane cases are made so through default of any curative efforts—people assuming that insanity is an affliction not within reach of medical art. Thus cases that might have been readily cured in the beginning are left till they induce organic changes, and thus become really intractable. At the same time that we declare the malady not actually incurable, it must be stated that its treat-

ment is one of the highest problems of art, and that but comparatively little medically is to be done by non-professionals.

It is always safe to attend to the state of the intestines and digestive organs. They are never right in these cases, the secretions are depraved, and the evacuations sometimes totally neglected. Secure a right state of the excretions by small occasional doses of calomel, combined with purgative medicine, as

Calomel,	15 grains.
Powder of ipecac.,	3 grains.
Jalap,	30 grains.
Aloes,	6 grains.
	<hr/>
	54 grains.

Mix, and make three powders.

Give one every other day, and, if one shall prove not efficient, give two for a single dose. The insane require larger doses of purgative medicines than others.

It is also always advantageous to stimulate the kidneys in these cases, and as these indications are clear, so the benefit that follows is evident. Another point of treatment, from which great benefit nearly always results, is putting the skin in proper order by use of the warm bath. The tranquillizing effect of this agent, moreover, is very great. It has more influence in soothing the sleepless cases than all the narcotics. Narcotics are seldom effective in inducing sleep. Chloroform does better, but is to be used with a sense of its danger, and has been given in drachm-doses. Exercise and regularity in all respects are imperatively necessary. Tonics are proper in the large majority of cases, and, whenever the state of the patient is known to be the consequence of any disease, that disease or its ordinary *sequelæ* in the system must be the objects of treatment.

With respect to the moral management, it should be impressed upon the minds of the friends and relations of the insane that attempts to reason with them, or to convince them that their hallucinations are the result of mental derangement, will only be abortive, and may probably prove hurtful. If a lunatic is not placed in an asylum, or otherwise taken from home, he should be separated from the rest of the family, and the utmost pains be taken to change all his old habits and associations. He should see only new faces; new objects must be presented to him; and every thing that can recall former ideas should be withheld. "The presence of strangers," justly remarks M. Esquirol, "suspends the delirium of the insane, either by the influence of new impressions, which is always useful, or from a secret feeling of self-love, which induces lunatics to con-

ceal their state of mind. Patients often appear quite calm before their physician and strangers, while they are at the same time abusing their relations or friends in an undertone."

No servant should have the control of a lunatic; and whoever is appointed to that duty should be made fully aware that nothing must be done or spoken to excite the ideas and the passions of the lunatic upon the subject of his delirium. None of the unreasonable ideas or opinions of the lunatic should be directly opposed by argument, or discussion, or opposition; nor should they be contradicted or ridiculed. Discussion or opposition only fixes the image more firmly, and intensifies the perception. Every means should be taken to fix the attention of the lunatic upon objects foreign to the matter of his lunacy, and to communicate new impressions to his mind. When there is a disposition to suicide, the lunatic must never be trusted alone for a single instant.

When the lunatic is not violent, he should walk out of doors twice a day, for an hour or more at a time; the circulation is thus better equalized than by any other kind of exercise. The early morning is the best time for the first walk; the balmy air of the new-born day tends to soothe the morbidly-sensitive nervous system, as well as to invigorate the habit. Although it is difficult to engage the attention of the insane to any particular occupation, yet it should always be attempted. Whatever can divert the mind from their diseased feelings, tends to break the catenation of symptoms which constitutes the disease.

The attendant on the insane should be firm, but not harsh in his manner, and should possess discretion enough never to revert to the causes or objects which are supposed to have developed the disease; nor to flatter the exalted ideas which the lunatic often entertains of his situation in society. Opposition, contradiction, argument, irritate and cause them to hate and defy those placed over them.

Let us say again that recovery is more frequent than is generally supposed; the average proportion may be stated as one in two and a half, a fact sufficient to set aside the usual opinion, that a person who is mad must always remain in that state; on the contrary, when the disease is not hereditary, nor complicated with other maladies—and when the insane person is not of advanced age, nor idiotic, nor epileptic, nor paralytic—the probability is in favor of recovery. The protraction of the disease must not be regarded as positively opposing the expectation of this desirable event. M. Baumes has recorded the case of "a lady who passed twenty-five years in a state of lunacy, within the knowledge of the whole country where she lived, and who suddenly recovered her reason." It is, nevertheless,

true that the greater number of recoveries take place at an early period of the disease. It is, also, necessary to extend generally the knowledge of the fact that the recoveries from madness are frequently complete.

DELIRIUM TREMENS.

There are nervousness; restlessness and sleeplessness; trembling of the hands and limbs; loss of appetite; coldness of limbs; feebleness of pulse; excessive perspiration; the tongue is furred, moist, and tremulous; there are distressing dreams, excitability of temper; delusions of a horrible nature; suspiciousness. The patient becomes more and more excited and maniacal, and unless restrained will do violence to himself or others.

Intemperance in alcoholic drinks, and opium-eating, are the predisposing causes. In persons thus predisposed, an attack may be excited by any circumstance which depresses the vital powers, such as sudden deprivation of the accustomed stimulus; loss of blood; severe illnesses; the shock of any severe injury or accident.

TREATMENT.—Opium combined with stimulus must be given in doses depending on the severity of the attack, the age and strength of the patient, and the duration of the habits of intoxication. As this is a dangerous medicine, yet is absolutely necessary, we will state the greatest quantity which may be safely given by a non-professional person in an extreme case. To a strong-built man about forty years of age, with all the symptoms fully developed, give half a drachm of laudanum in half a pint of porter, or in a glass of spirits. Half these quantities may be repeated every two hours, for twelve hours, unless sleep is produced in the mean time. If there should be much heat about the head, or general feverishness, a quarter of a grain of tartar-emetic may be added to each dose of laudanum. In cases where the opium does not procure sleep, the only remedy that will quiet the patient is the tincture of digitalis. This is as effective as it is perilous; but there must be less hesitation in giving it, as in these cases death is imminent. Give it in doses of four drachms, to be repeated if necessary.

When sleep has been obtained, purgatives of calomel with antispasmodics should be given. Sickness or nausea may be relieved by a drop of creosote in a little spirit and water.

The after-treatment must consist in tonics and the gradual diminution or abstraction of stimulants.

The diet during the attack should be light, but nutritious, such as strong beef-tea, broths, etc., with the addition of the accustomed stimulus in smaller quantities.

DIPSOMANIA, OR THIRST-MADNESS.

This is characterized by an intense craving for intoxicating liquors, attended by depression and restlessness. It is a disease—but a vice also; and the victim is not an irresponsible creature.

Bitter tonics and mineral acids, especially sulphuric acid properly diluted, must be given. There must be total abstinence from alcoholic mixtures, and hyoscyamus must be given to prevent sleeplessness. Begin with two grains, and increase as seems necessary.

DISEASES MAINLY SYMPTOMATIC OF OTHER DISEASES, BUT REQUIRING TREATMENT.

DROPSY.

DROPSY is a consequence of many diseases. That common form in which the abdomen is filled with water is generally the result of disease of the liver. In women it may depend upon ovarian disease. Dropsy that begins in the feet and legs, though it extend to the abdomen, results from disease of the kidney. There can be no way to thoroughly and completely cure the dropsy but by curing the disease that causes it; yet, as it is a source of great discomfort to say the least, and as the evacuation of the water relieves very greatly, it is quite proper to attempt this in the progress of treatment of the original disease, or in the absence of other treatment. If the original disease is hopelessly incurable, the evacuation of the water is of course the only assistance that can be given. Abdominal dropsy in women very likely depends upon ovarian disease. Then the only effectual remedy is by tapping, which of course must be done by a surgeon or physician. Other dropsies may be treated by medicines, that cause profuse watery discharges from the bowels, by medicines that increase the action of the urinary organs, and by sweating. Care must be taken with these not to go too fast, as this will weaken the patient and aggravate the original disease. In dropsy dependent upon disease of the liver, any of these remedies may be used moderately. The best remedy will be :

Resin of podophyllum,	4 grains.
Bitartrate of potassa,	3 drachms.
Mix, and make eight powders.	

One of these may be taken every two hours till effective. This combination will act both on the bowels and the kidney. It should not be used, therefore, in those dropsies which began in the feet, for these depend upon kidney-disease. In these cases, the kidneys must have all the rest that is possible, and we must endeavor not only to carry off by other channels the accumulated water, but to relieve these organs altogether. An effectual medicine is the

Compound powder of jalap, 30 grains.

This, taken once a day, will give several watery discharges, and the doses may be reduced to twenty grains, or increased to forty or sixty, according to the effect. Such discharges, kept up for several days, will carry out of the system a great deal of water. In severe cases, sweating must be resorted to also.

Liquor ammoniæ acetatis, or mindererus spirit, is the simplest medicine that can be taken for the purpose. A teaspoonful every two hours will be sufficient, if the person is kept well covered and not exposed to sudden changes of air. In dropsies of heart, chest, or brain, the only medicine that can be permanently relied upon is the iodide of potassium, which may be taken in quantities varying, according to effect, from ten to eighty grains per day, dissolved in water.

There is a dropsy that depends upon an altered state of the blood, and is not due to disease of any organ, though it may coincide with such disease. It must be treated with iron. Give twenty to thirty drops of the tincture of chloride of iron, three or four times a day, in water.

NAUSEA, VOMITING, RETCHING.

The act of throwing up the contents of the stomach consists of a forcible contraction of the muscles of expiration, and of these only, the glottis being closed, and the upper orifice of the stomach opened. It was thought at one time that vomiting depended upon a convulsive action of the stomach alone; then came the theory that the stomach was passive in the act, which was attributable to the pressure of the muscles of the belly excited to violent action; but we are now quite convinced that both these exciting causes of vomiting operate at the same time.

Although vomiting is generally preceded by nausea, yet this is not always the case; infants frequently relieve their stomachs of an over-quantity of food without showing the slightest signs of distress, which would not be the case if they *felt* sick, as well as were

sick, as the phrase generally goes. In the vomiting which not unfrequently attends coughing, sobbing, etc., there is also commonly an absence of the sensations of nausea. The causes of vomiting are numerous: poison, medicines, indigestion, excess of bile, or mucus, in the stomach or bowels; a mechanical excitement of the muscles of the gullet, as with a feather, finger, etc., hiccough, sobbing, laughing, the motion of a ship in the water—any thing which is repugnant and offensive to either of the senses; mental emotion; a sudden blow or shock to the system.

The term retching is applied to an ineffectual effort to vomit. Violent retching is one of the most distressing symptoms of biliary and other derangements of the stomach; it is sometimes very obstinate and long-continued, so as completely to exhaust the patient, especially if in a weakly state, and cause a rupture of a blood-vessel, or other alarming consequences; if it proceeds from an overloaded stomach, or the presence of any poisonous substance, it is best to produce vomiting by an emetic; otherwise effervescing draughts should be tried, with five drops of laudanum in each.

The sensation of nausea, the general provocation of both vomiting and retching, is usually referred to the stomach, and is no doubt commonly due to causes connected with that organ only; yet very frequently the feeling is sympathetic, having its origin in the brain or the nervous system; thus we know that a severe blow on the head, a dislocation, or other injury to any part of the body, attended with severe pain, will occasion nausea; so will horrible and disgusting sights and sounds, and odors, or any thing which affects the brain through the medium of the senses. The nausea of pregnancy, too, appears to be purely sympathetic, and the action of emetics must be attributed rather to their influence on the nervous system, than directly on the stomach; for it has been found that they act as well when injected into the veins as when swallowed. So we find that gall-stones in the kidneys, tumors in the womb, and many other diseased conditions of the various organs, give rise to a feeling of sickness—all showing that this feeling is, in many cases, merely sympathetic. The relaxed state of the nervous, and consequently of the muscular system, which attends nausea, is favorable to the performance of certain surgical operations, such as the reduction of dislocations, ruptures, or constrictions: hence surgeons, previous to such, often produce it artificially by the administration of tartar-emetic.

The proper *remedies* for nausea, of course, will depend upon the causes: if it proceeds from affection of the brain, but little can be done to relieve it; if from disorder of the stomach, free vomiting,

which may be easily excited by warm water and a little ipecacuanha, or merely tickling the fauces with a feather, or a brisk purgative, will afford relief; if occasioned by some nervous shock to the system, a glass of sherry wine or a little brandy, or some other nervous stimulant. In any case, effervescing draughts made with carbonate of soda and lemon-juice will be grateful, and probably effectual; if other means fail, a mustard-plaster to the pit of the stomach may be tried; or creosote, in drop-doses, rubbed down with a little sugar or gum; or a mixture like this:

Hydrocyanic acid,	. . . . .	12 drops.
Acetate of morphine,	. . . . .	1 grain.
Carbonate of soda,	. . . . .	1 drachm.
Water,	. . . . .	6 ounces.

Take a tablespoonful every three hours.

A drop of the above acid, or of creosote in soda-water, is also likely to be of service. A reclining position is best for the patient; and perfect quietude, both of body and mind, especially when the affection has a nervous origin.

ABSCESS.

Heat and tenderness of the part affected are the premonitory symptoms of an acute abscess; it is commonly confined at first to a small spot, which becomes red, and painful to the touch: very soon a distinct throbbing may be felt, which is a sure indication of the formation of matter; then the part begins to swell, and the skin exhibits a shiny, semi-transparent appearance, sometimes being tinged with purple; this becomes more marked and decided as the tension increases, with the increase of the matter beneath, until it gives way of itself or is opened by some sharp instrument.

Fomentation with water as hot as it can be borne, and hot bread or linseed poultices, should be resorted to in the first stages of an acute abscess; strong drawing and irritating applications are often made use of, but this only increases the anguish without doing good; indeed, it is both cruel and hurtful. The poultices should be frequently changed, in order to keep up the requisite degree of warmth; they should be carefully adjusted, so as not to press unduly upon the tenderest part, and, when the pain is very severe, poppy-heads should be boiled in the water with which they are mixed, and this poppy-decoction should also be used for the fomentations. If, as is often the case, the abscess should be in the hand or lower part of the arm, that limb should be supported by a sling made of a silk handkerchief, or some other soft material, so as to

keep it from hanging down; adjust it so as to have the upper part of the arm as nearly perpendicular as may be, and the bend of the elbow at right angles with it. To keep the system cool, and allay the fever which generally more or less attends active inflammation, the patient should take, every other night or so, an aperient pill, composed of compound extract of colocynth, four grains; calomel one grain. After the discharge of the thick yellow matter has ceased, the poultices may be discontinued, and moist rags kept applied for some days, after which the edges of the wound may be drawn together by strips of adhesive plaster, over which it is best to place a dressing of cerate or spermaceti-ointment. If the wound is deep and large, it may be some weeks before it fills by granulation, but otherwise the healing process proceeds rapidly, unless there is a want of vital energy in the system, or a diseased state of the part immediately affected; in this case bad sloughing ulcers result, which are very difficult to heal.

A medical man will generally open an abscess, when it is sufficiently ripe, rather than wait the slower process of the breaking of the skin, and by doing this he often saves the patient much suffering and constitutional derangement; but no person unacquainted with the anatomy of the part should attempt this; to do it effectually the cut should be bold and deep, and exactly in the right place; an unpractised hand will probably leave the largest reservoir of matter untouched, and so render another incision necessary, and effect no good purpose by the pain inflicted. Where the integument which covers the seat of the abscess is hard and thick, it is nearly always necessary to open it, and only the skilled practitioner can judge of the proper time for doing this; therefore his aid should in all such cases be solicited, as in those of deeply-seated and internal abscesses, which generally assume a *chronic* character. With regard to the treatment of these, no specific directions can be given, it must depend much upon the character of the tissues which they affect; as a general rule, the patient's strength must be supported by a good and generous diet, and the administration of tonic and cordial medicines, taking care to keep the bowels moderately open. Stimulating plasters made of Burgundy pitch, gum-ammoniac with mercury or galbanum, are applied with advantage to the abdomen, or other seat of the affection, as are poultices of oatmeal with vinegar, or yeast, or water impregnated with salt. For abscesses in the neck, Astley Cooper recommends incision with a sharp knife, pressing the matter well out so as to excite adhesive inflammation, and dressing the wound with bread-poultices moistened first with sulphate of zinc in solution, and afterward with spirits of wine,

giving good light nourishment, and carefully regulating the bowels.

For the relief of the hectic fever, night-sweats, and other constitutional disturbances, caused both by acute and chronic abscesses, but more especially the latter, preparations of bark or iron, mineral acids, or cod-liver oil, may be given during the period of copious discharge; and especially immediately after it, when the powers of Nature are most sorely taxed to supply the waste, and reconstruct the destroyed tissues, nourishing food and strengthening medicines are required.

HICCOUGH (*Hiccup*; *Hocket*).

This is a convulsive catch of the respiratory muscles and spasmodic action of the diaphragm, caused by irritation of the stomach, indigestible or unmasticated food; hysterical laughing; irritating matters in the intestines; diseases of the organs in the abdomen; pregnancy.

TREATMENT.—A draught of cold water; ether; antispasmodics, as camphor, ammonia; mustard-plasters on the pit of the stomach. One of the most effective and immediate of all remedies is eating a lump of sugar. Prevent recurrence by free purgation with alkalies.

WAKEFULNESS.

Wakefulness occurs independently of any specific disease being present. The best means of obviating it is a tepid bath, taken just before bedtime; but, when this cannot be obtained, the hot foot-bath will often answer the same purpose.

There is a variety of nervous irritation, commonly called Fidgets, which always more or less causes wakefulness. It is generally accompanied with hot hands and a dry skin, indicative of irritative fever. The wakefulness, in this case, is best counteracted by placing the hands in cold or in tepid water, for five or ten minutes; or wrapping the end of a towel dipped in cold water round one hand, and allowing the other end to hang over the side of the bed. If the weather be mild, nothing so effectually destroys wakefulness as rising from bed, walking about the room for a few minutes, then returning to bed. It is sometimes, also, overcome by sipping a tumbler of cold water on retiring to rest.

Sensitive persons, who suffer from wakefulness, should refrain from exposing themselves to any causes of excitement for a considerable time before going to bed. They should not drink coffee, nor green tea, at a late hour; for although these substances do not in-

fluence the circulation to any morbid extent, yet they act on the nervous system in a manner unfavorable to sleep. Give the bromide of potassium in doses of two scruples an hour before bedtime.

NERVOUSNESS OR IRRITABILITY.

This is a malady very rife among persons of sedentary habits, or those who have exhausted the brain by severe mental labor, or weakened the bodily powers by drink and dissipation. The man who leads an active, open-air life, and lives temperately, is seldom or never the victim of this distressing malady; nor the active bustling woman, who does her duty, and meets trials and troubles with cheerfulness and courage. Nervous people are peevish and pining, having an unsound mind in an unsound body; they have in some way violated the laws of health; generally, but not always, they may be the offspring of a sickly and nervous stock, or they may have fallen into this state through disease, or some unavoidable overtaking of their bodily or mental powers. In any case they are greatly to be pitied, and, if possible, relieved of these distressing symptoms, which poison the springs of earthly enjoyment, and make life a burden rather than a blessing. Great susceptibility to external influences marks this state of nervousness; any unwonted sound or unusual sight will set the heart palpitating, the head throbbing, the hand trembling; little troubles and difficulties are magnified, and mental emotions, of whatsoever kind, seem to overpower the mind. The resort in this case is too commonly to alcoholic stimulants, which, although they may stupefy the senses, and deaden the nervous susceptibility for a time, yet produce a corresponding depression when the reaction comes on, and render both mind and body less capable of struggling against the malady. It is not to be denied that these may be employed as remedies in nervous diseases, and with much advantage, but it is not safe for the patient to use them at his own discretion, nor must they be substituted for the more permanent means of invigorating the system, such as regular open-air exercise, sea-bathing, cheerful society, and strengthening medicines, such as quinine and preparations of iron. Attention must be paid to the state of the bowels, as any irregularity there will, it is likely, tend to keep up nervous irritability, and counteract the efforts made for the patient's benefit. If purgatives are required, they should be of a warm, stimulating character, such as rhubarb with ginger or peppermint. Tincture of valerian and aromatic spirits of ammonia are good nervous stimulants, and should be combined with the tonics.

NIGHTMARE.

This is a nervous affection, in which there is a violent struggle and tremor, with a severe pressure on the chest from impeded respiration. The sensation is frequently preceded by some fearful dream, as that of an implacable enemy, known or unknown, in close pursuit of the dreamer, from whose grasp he feels incapable of escaping; or of exposure to some overwhelming danger.

It appears most frequently in persons of an irritable or nervous temperament, and of a weakly constitution; particularly among those who are predisposed to low spirits. Others, indeed, are occasionally affected by it, but more rarely, and perhaps in a less degree. The most usual exciting causes are great fatigue of body and mind; indigestible food; and long-continued disorder of the stomach and bowels. It may often be looked upon as a certain indication of deranged health.

TREATMENT.—The treatment is very similar to that directed for indigestion. The mind and body should be kept free from all undue fatigue and commotion; the diet be light, especially toward evening; and the bowels be preserved regular, by the occasional use of cathartic pills. Two grains of quinine and two of sulphate of iron, in a pill, twice a day, constitute a valuable remedy.

If the stomach and general habit are weak, the appetite deficient, and the pill of quinine and sulphate of iron is not tried, then the patient should take carbonate-of-iron pills, with very considerable daily exercise. In all cases, the supper must be very simple, and small in quantity, animal food being then altogether avoided.

VARICOSE VEINS.

Varicose veins are not uncommon in the legs of stout elderly females, and may be met with in those of all ages, and both sexes. In this affection there is enlargement of the vessels, which stand out from the surface of the limb, like cords, like which, too, they often assume a knotted appearance. This affection may be attributed to obliteration or deficient action of the valves of the veins of the leg, or some other cause of obstruction of the flow of blood upward, through those of the abdomen. Pregnancy, habitual costiveness, liver disease, abdominal tumors, may be all mentioned as exciting causes. The pressure of a truss, or belt also, or of garters too tightly tied, may bring on this varicose condition of the veins, especially in persons whose occupation necessitates much standing. Great care should be taken to avoid a scratch or contusion of the swollen part, or a wound may be produced which is likely to result in an

ulcer very difficult to heal. The part should be supported and protected by a bandage, or elastic stocking; if the former, it should be very carefully and evenly applied, but a well-fitting stocking of elastic web is the best and most convenient.

FETID PURULENT DISCHARGES FROM THE EAR.

Purulent discharges from the ear frequently follow severe cases of scarlet fever, and some other eruptive diseases, and continue for the rest of life. But, although this discharge cannot always be checked, yet it may be moderated, and the fetor corrected, and in this respect it becomes an object of domestic management. The ear should be, every morning, syringed with either tepid water, or tepid lime-water; and, immediately afterward, two or three minims of a mixture, composed of two drachms of balsam of Peru and six drachms of fresh bullock's gall, well mixed together, should be dropped into it. Cotton or wool, moistened with glycerine, ought to be worn in the ear, to absorb the discharge, and to prevent the injurious influence of cold. Give quinine freely and constantly.

HEADACHE

Is usually a symptom of some disorder of the brain, nervous system, or digestive organs. It presents great varieties of character, depending upon its causes.

1. *Headache from congestion*, or over-fulness of the vessels of the brain, occurs from those causes which impede or increase the circulation through the brain—as the use of narcotics, intemperance, prolonged or excessive mental exertion, fevers, irregular or suppressed menstruation, exposure to the sun, etc. The pain is of a deep-seated, heavy character, throbbing, with noises in the ears, giddiness, fulness of the eyes.

2. *Nervous headache* arises from any moral or physical agency by which the vital powers are depressed. The pain often comes on suddenly, and is very acute and darting, attended with giddiness and nervous agitation; the head cool and face pallid. The pulse is feeble. There is no febrile disturbance. This form is very generally worse in the morning than in the evening. It often assumes an intermittent type. Hysterical persons are liable to this form of headache.

3. *The bilious or sick headache* is attended with nausea or vomiting, heart-burn, and other evident signs of disordered stomach or liver. The pain is very acute or heavy, often confined to one side of the head, or moving from one part to another. This variety is

caused by errors of diet, by intemperance, by excessive mental exertion, and moral excitements; by derangements of the stomach, costiveness, etc. This form of headache is frequently associated with hypochondriasis.

4. *Rheumatic headache* accompanies catarrh, and may generally be found to be external, as indicated by its being increased by movement, by the character of the pain, by the tenderness of the surface, by the presence of symptoms of rheumatism in other parts of the body, and by its having been caused by cold.

5. *Headaches from Organic Affections of the Brain.*—These may be distinguished from the preceding by their being more constant and prolonged, by the frequent occurrence of retching, or by the presence of convulsive or paralytic affections.

The headache dependent upon derangement of the stomach, indigestion, etc., and that dependent on congestion of the head, in which there may or may not be derangement of the bowels, are the commoner varieties. The immediate attack of each is soon relieved by a cathartic dose:

Compound powder of jalap,	20 grains.
Powder of rhubarb,	10 grains.

As soon as this acts, the pain will be relieved; but its action may be hurried by taking two or three cups of warm tea. Let the patient, at the same time, sit with the feet in a pail of hot water. The recurrence of the attacks is to be prevented by attention to diet, exercise, and bathing, and the use of iron and bitters, as gentian.

The rheumatic headache and brow-ague will give way only to quinine; but the application of wet compresses, applied as hot as they can be endured, will relieve the pain. The nervous headache will also be relieved in most persons by hot water. In others, cold is more effective; try both—for this headache use the following:

Atropia,	1 grain.
Water,	2½ ounces.
Sulphuric acid sufficient to make a solution; take from 10 to 20 drops.	

All who are “subject to headache” should habituate themselves to the use of the shower-bath.

HÆMORRHAGES (*spitting Blood—Hæmoptysis*).

With, or it may be without cough, blood is expectorated in greater or less quantity. Sometimes the expectoration of blood is preceded merely by a sense of tickling in the throat. The blood may

be in such large quantity as to constitute the whole of the expectoration, or it may merely tinge or streak the phlegm that is coughed up. If in a considerable quantity, a sense of suffocation may be experienced, or vomiting may be excited. The appearance of blood in this manner excites alarm, and produces acceleration of the pulse. The color of the blood is generally florid, and, from admixture with air, it may be frothy.

These symptoms may recur. The intervals are uncertain. Sometimes the first attack is so profuse as to prove fatal.

CAUSES.—Consumptive disease in the lungs; inflammation of the lungs; deformities of the chest; disease of the heart; certain trades; external injury to the bones of the chest; over-exertion in lifting weights, etc.; tight lacing; suppression of accustomed discharges; violent mental emotions; sudden surprise; severe fits of coughing or sneezing.

DISTINCTIVE SYMPTOMS.—It may be difficult to say with certainty whether blood have come from the lungs, stomach, throat, or the nose. In the latter case, the fluid is ejected from the nostrils as well as from the throat; it has not a frothy character. If ejected from the stomach, it is usually dark-colored, not frothy, and is attended by sickness and vomiting.

TREATMENT.—The strictest rest, silence, and freedom from mental agitation, are of the first importance. The patient should be placed in a half-sitting posture. Cool air must be freely admitted; all superfluous bed-hangings, or overcrowding of the apartment, must be avoided. The occurrence of spitting of blood is one of the earliest signs of the existence of tubercles in the lungs (consumption), and is, to a certain extent, a natural relief to congestion in those organs. It is not necessary, therefore, suddenly to arrest the bleeding.

As congestion is most commonly the exciting cause, the removal of blood from between the shoulders, or the hollow of the throat just above the breast-bone, is one of the remedial means to be employed. Leeches, or the cupping-apparatus, will be the proper agents for this purpose. Dr. Graves says that “no topical bleeding appears to me so useful as the oozing of blood from that situation where the cough is teasing, and hæmoptysis considerable; six leeches should be applied every six hours, or in less severe cases a smaller number, and at more distant intervals.”

Spare diet and perfect quiet are among the other most useful measures to be adopted. The bowels should be freely opened by means of a saline purgative, preceded, where they are costive, by from three to five grains of calomel, and assisted by an enema

of salt and gruel; if the bleeding continues, two grains of powder of ipecacuanha should be administered every quarter of an hour until it abates; the chest also should be sponged with vinegar and cold water, and a dessertspoonful of the former in half a wineglassful of the latter will be a useful accompaniment to any other medicines which may be thought necessary. The remedies will vary considerably in accordance with the peculiarities of the case; sometimes mineral acids, such as the dilute sulphuric, from fifteen to twenty drops in cold water, three or four times a day; in some cases ten or fifteen drops of spirits of turpentine may be given; and as a ready remedy, when no other is to be obtained, common salt, a teaspoonful at the time, repeated frequently. To get up the strength after an attack of this kind, nutritious diet, with preparations of iron, or bitter tonics, and mineral acids. Persons subject to hæmoptysis, from whatever cause, should live abstemiously, avoid late hours, exposure to cold or great heat, and excitement of any kind. In habitual and protracted cases, change of climate may be necessary.

VOMITING BLOOD (*Hæmatemesis*).

Vomiting of blood is a discharge of blood from the stomach, and is generally preceded by affections of that organ and of structures in its neighborhood. There is often pain or uneasiness of the left side, with anxiety, and a sense of tightness in the chest. The blood discharged is generally dark-colored, grumous, and often mixed with some of the contents of the stomach. It may occur in persons of a full habit and robust constitution, but is most common in those who are weakly, or who labor under a faulty condition of the blood and obstruction in the liver.

Whatever greatly deranges the functions of the stomach, or produces bad blood and internal obstruction, may give rise to it; and the *most frequent causes* appear to be grief, or other depressing or violent passions; costiveness, especially if occurring in a constitution in which the stomach is peculiarly irritable; blows on the region of the organ affected; fulness of habit combined with an intemperate mode of life. It is generally a symptom of something wrong in the general system.

It is, in general, easily *distinguished* from spitting of blood, by the blood being here brought up by vomiting, and by its being of a deep modena color. It is also generally mixed with some of the contents of the stomach. In spitting of blood, on the contrary, the fluid discharged from the lungs is brought up by hawking, or coughing, and is of a bright-red color.

TREATMENT.—The first general object of treatment in simple discharge of blood from the stomach is to open the bowels freely with a saline cathartic. Use the following:

Cream of tartar,	2 scruples.
Sulphate of potash,	2 scruples.
Nitrate of potash,	6 grains.
Camphor,	3 grains.

Mix, and take in water, and repeat it in the course of a couple of hours, two or three times, until it acts on the bowels, which it will do mildly and effectually. This powder should be continued about twice a day for the first three or four days, and after that every morning, taken in cold water. In all discharges of blood, *saline remedies* are of the first importance. They relieve congestion in the circulation of the liver, unload the bowels, promote healthy secretions, and improve the quality of the blood.

Should the discharge prove obstinate, give ten grains of powder krameria in water. After the discharge of blood has been checked by these means, the use of tonic pills of sulphate of quinine, or an iron mixture, should be entered upon. These should be taken thrice a day, until the blood is improved, and the stomach and general system have recovered that degree of tone which will pretty certainly secure the patient against the recurrence of the vomiting.

BLEEDING FROM THE NOSE (*Epistaxis*).

Persons of a sanguine temperament, and full habit of body, are most subject to this disorder, which in many cases should be regarded as a salutary provision for the relief of the overcharged system. If it does not run to a weakening extent, it is very questionable whether it should be interfered with. Those who are troubled with vertigo and headache, arising from a fulness of the veins and a tendency of blood to the head, know how much better and lighter they feel after a good bleeding from the nose; and there can be no doubt that many a fit of apoplexy has been averted by it, and many an attack of inflammatory fever, or inflammation of the brain. This bleeding may arise from several causes, among which may be named violent exercise, great heat, blows on the part, the long maintenance of a stooping posture, and a peculiar smallness of the vessels which convey the blood to the brain, rendering them liable to rupture; it may come on without any previous warning, or be preceded by headache and a sense of heaviness, singing noises in the ear, heat and itching of the nostrils, throbbing of the temporal artery, and accelerated pulse. When it comes on too fre-

quently and continues long, so as to cause faintness, and especially if the person subject to it be of a weakly habit or advanced in years, it should be stopped as soon as possible. The stoppage may sometimes be effected by immersing the head in cold water, free exposure to cool air, and drinking cool acidulous liquids; the body of the patient should maintain an erect position, with the head thrown somewhat back, a key or other cold substance be applied to the spinal cord, vinegar be snuffed up the nostrils, or an astringent wash injected with a syringe; it may be composed as follows:

Alum and acetic acid, of each	2 drachms.
Water,	6 ounces.

Or three drachms of the muriated tincture of iron in the same quantity of water; or, if these fail, the nostrils may be plugged with lint dipped in a strong solution of the sulphate of copper; or the lint first moistened, and then dipped in finely-powdered charcoal. When the bleeding has stopped, there should be no haste to remove the clotted blood from the nostrils; let it come away of itself; do not blow the nose violently, nor take stimulants, unless there be excessive faintness, in which case a little cold brandy-and-water may be taken. When there is a full habit of body, cooling medicines, low diet, and leeches to the temples, may be safely advised, with a purgative dose of calomel.

DISCHARGE OF BLOOD FROM THE BLADDER (*Hæmaturia*).

The chief causes of this discharge of blood are—a stone in the bladder; a violent blow on the kidneys or bladder; or general weakness and indisposition. It is frequently dependent upon debility, and the most efficacious remedies are the superacetate of lead, gallic acid, and the tincture of muriate of iron. Twenty or thirty drops of the tincture of muriate of iron may be taken in water every hour, or every second hour, till the bleeding stops. Whatever are the medicines resorted to, the compound powder of ipecacuanha may be given with great advantage at the same time, to allay pain and irritation. Three or four grains made into a pill with extract of hemlock, three times a day, is the proper dose. The use of mucilaginous drinks will likewise be very proper, as a strong solution of gum-arabic in water, linseed-tea, or decoction of marshmallows.

Gallic acid is a remedy of extraordinary value in the treatment of hæmaturia, or bleeding from the bladder. It should be given in doses of five or six grains in a draught, with an ounce and a half of mucilage of gum-arabic, and ten drops of tincture of henbane, which draught is to be repeated at short intervals.

TOOTHACHE.

For this distressing and very common malady almost every one has a "sure cure," the peculiarity of which is, that it does little or nothing to mitigate the anguish of the sufferer. The pain is commonly caused by the exposure of the interior pulp, containing the nerve and blood-vessels, to external influence, by decay of the outer portion of the tooth. Among the remedies pretty generally successful are, creosote, chloroform, and laudanum, separately or in combination; they may be tried all ways: the mode of application is to saturate a small piece of lint or wadding, and introduce it into the hollow of the tooth, keeping it there as long as may be necessary; should there be no available hollow, put it as close as possible to the seat of pain. Other remedies are—applying a drop or two of the oil of cloves, or cinnamon, on lint; or thrusting into the hollow tooth a piece of wire previously dipped in strong nitric acid; this application, if properly made, destroys the nerve, but it must be very carefully done, so that the acid does not touch the other teeth or the mouth. An aching tooth may oftentimes be plugged, and remain serviceable for years. Where a tooth is so far gone as to be very troublesome, it is best to have it out; the pain of the operation is sharp, but short, while the constant ache, ache, ache, destroys alike health and spirits, and unfits one for all the active duties of life.

Where the teeth ache without a perceptible cavity in any one, and the aching is not confined to a single tooth, it is a form of neuralgia. Give the carbonate of iron freely. Valet's mass is a convenient form. From five to twenty grains a day may be taken for several days.

The extract of belladonna, one-fourth of a grain, once in four or five hours through a day, for an adult, is often most effective.

The teeth should be kept clean. Their aching depends upon decay as a rule, and decay depends upon two sources of impurity. The first is a deposit of tartar upon them near the gum; and the second is portions of food adhering to them after meals. The accumulation of tartar is a frequent source of disease in the teeth and gums, and precautions should be taken to prevent its adherence to them. The best plan is that of cleaning them with the brush night and morning. Dentifrices are frequently employed, and, perhaps, when simple, they are of service. All chemical products, however, should be avoided. Any thing which acts chemically upon the tooth will open the way to speedy decay. The simplest dentifrice, and one of the best, is a mixture of prepared chalk and well-

powdered camphor. The chalk acts as a scouring material, while the camphor stimulates the gums, and counteracts the decomposition of any small particles of food that may lurk among the teeth. The purer the water that is employed for washing the teeth the better.

To cleanse away portions of food adhering to the teeth, the toothpick should be used. Metallic toothpicks are objectionable; those made of bone or quills are to be preferred.

When teeth are found to be decayed, immediate attention should be paid to them. They more frequently indicate serious derangement of the health than is imagined. Where teeth are already decayed, they cannot be restored to their pristine integrity, but the decayed part may be removed, or the whole tooth may be extracted. The sooner this is done the better; for decay has an undoubted tendency to spread, and nothing is so disagreeable to other people as the breath of a person tainted with the faint odor of decomposing teeth.

Gum-boils are little abscesses, generally the result of disturbance at the root of the teeth. Hasten their suppuration by applications as nearly like poultices as possible. The best is a split fig.

COMMON COLD.

No disorders of the system are more common, in this climate, than those originating in sudden changes of temperature. Any sudden variation in the weather, or failure to adapt ourselves to it, starts a train of evils in every family. One member has a cold "in the head," another has it "on the chest," a third has deranged bowels, a fourth an earache, a fifth a neuralgic face, a sixth is conscious again of the old rheumatism, and so on—innumerable ills due to trouble with the several functions, dependent on changed relation with regard to cold and heat.

Catching cold is "catching heat." It is not the exposure to the cold so much that does the harm, as the indiscreet way in which we warm ourselves after exposure. The haste we make to be comfortable is the general origin of the trouble. We get cold gradually, and we try to get warm at once, and do get warm in certain parts, perhaps, but we thus establish an inequality of heat in the system. One part is hot while the other is still cold, and thus the circulation becomes disordered, and the functions are disordered with it, through the congestions thus set up. It is the same in taking cold by sitting in a draught—we establish an inequality of temperature for different parts of the system.

The proper plan, therefore, is to restore the lost heat gradually; make the reaction of the system from the cold natural, and it will be general; stimulate with sudden heat, and it will be partial.

When you come out of a very cold atmosphere, you should not at first go into a room that has a fire in it, or, if you cannot avoid that, you should keep for a considerable time at as great a distance as possible, and refrain from taking warm or strong liquors. This rule is founded upon the same principle as the treatment of any part of the body when frost-bitten. If it were brought to the fire, it would soon mortify, whereas, if rubbed with snow, no bad consequences follow from it. Hence, if the following rule were strictly observed, *when the whole body, or any part of it, is chilled, bring it to its natural feeling and warmth by degrees*, the frequent colds we experience in winter would, in a great measure, be prevented.

The treatment, when the cold is taken, should be repose in a moderately warm atmosphere, the use of diluting drinks, barley-water, or gruel lukewarm, and an aperient, or ten grains of blue-pill. If the cold be more severe, add active diaphoretics, as the liquor of acetate of ammonia, and keep in bed.

If the snuffles and running at the nose are troublesome, throw a few drops of tincture of iodine into warm water, and inhale the vapor, or take the carbonate-of-iron pills. This is generally the first consequence of cold, and as it passes away a cough follows, the trouble going downward from head to chest. While the cough is dry, the best medicine for it is Dover's powder, taken on going to bed, from five to ten grains. If the cough is moist, use the following pill:

Compound squill-pill,	. . . . .	½ drachm.
Powder of ipecac.,	. . . . .	15 grains.
Extract hyoscyamus, .	. . . . .	15 grains.

Make thirty pills; take one or two for a dose.

The weakly and delicate, who are subject to frequent colds, should endeavor, by diet, regimen, daily sponging with cold water, and medicine, to invigorate the general habit, remembering that the most effectual way of guarding against cold is by raising the system above the influence of ordinary change through increasing its strength.

In nearly all persons, if a cold lingers, and becomes chronic, tonics are proper; and the sulphate of quinine, two or three grains a day, or the carbonate of iron, four to six grains a day, is the best.

COUGH.

Cough indicates disorder of the respiratory organs, or irritation of their nerves. It arises whenever the air irritates the passages naturally fitted to receive it, and is the effort of the organ to expel the cause of irritation.

Cough is present in bronchitis, whether the simple bronchitis of common cold, or the acute or chronic graver inflammation; in pneumonia; in pleurisy; in all diseases of the larynx, and of the throat in croup; where there are worms in the intestinal canal; in asthma; in whooping-cough; in heart-disease; in hysteria; in tubercles.

In pneumonia, pleurisy, or tubercles, there will always be other associated facts to distinguish it, particularly pain in the breast. In asthma, hysteria, and in whooping-cough, the cough occurs in paroxysms that seem to threaten suffocation; in the larynx it is always harsh, and affects the voice; in croup it is barking; and that from heart-disease is always accompanied with a peculiar uneasiness and anxiety.

We need hardly say that it is in vain to take cough-mixtures with a view to curing these several forms of cough; the only cough for which these preparations are at all useful is that due to the disorder and irritation left behind by a common cold; a good medicine for this is the pill recommended under common cold; but the regular use, for some days, of the sulphate of quinine is better than all else.

DISEASES OF BONE AND TENDONS, AND DEFORMITIES.

INFLAMMATION OF BONE, CARIES AND NECROSIS.

SEVERE and deep-seated pain, with swelling of a limb, most commonly of the thigh or leg of children, generally indicates an acute inflammation of the bone. There is usually great constitutional disturbance, shown by active fever, shivering, etc. After a few days the skin of the limb at some part begins to have an inflamed appearance, and in a day or two more it will be felt soft and baggy, and matter forming will point somewhere on the surface.

The causes of this are cold, bruises, sprains, and constitutional diseases of a scrofulous character.

There is a chronic form that may follow the acute, and another that may be original in itself, lasting through years. This originally chronic form is commonly dependent upon syphilis, though it may also depend upon other diseases. In the other, after the acute symptoms have subsided, a slow inflammation is left, accompanied with continued discharge of matter, indicating abscess of the bone, or the death of portions of it—*necrosis* or *caries*. Sometimes the entire shaft of a bone dies, and is only to be separated by a difficult surgical operation. Small portions of dead bone presenting at the surface may be removed by a pair of forceps.

Treat the disease in its acute state by active leeching; warm-water dressing, the limb being elevated in a position on a line with or above the line of the body, active purging, and saline fever-medicines. When matter points at the surface, an opening for its exit should be made at the most depending part.

There is no more distressing malady in the whole range of ills that flesh is heir to than chronic inflammation of the bone. Rest is the most important point in the treatment, and soothing the noctur-

nal pain by opiates. Give iodide of potassium, with tincture of cinchona; tincture of iodine applied locally, if the skin be not inflamed or broken, the limb being rested and supported by bandaging. The state of the health should be improved by change of air, with tonics and a good diet. One of the best tonics for these cases is iodide of iron.

RICKETS.

This is a softening of the bones from want of earthy matters, due to debility. The name rickets is applied exclusively to the disease as it occurs in children; but it occurs in grown persons also, and is then called osteomalacia.

The symptoms are—indisposition or inability for exertion; impaired or capricious appetite; irregular or disordered bowels; soft, flabby flesh; profuse perspiration; emaciation. After these symptoms have lasted for several months, a disproportion becomes apparent between the size of the head and of the body; the abdomen becomes enlarged; the bones of the arms and legs are observed to be bent, and their extremities enlarged, swollen, or knobby. This state may remain for years, and never get worse; or the softening and deformity of the bones increase so much that it is not possible for the sufferer to sit erect, and the organs within the body become so encroached upon and interfered with, that they can no longer perform their functions.

The treatment for a child is a healthy wet-nurse; pure fresh air; attention to the state of the bowels, etc. And, in addition to this, for a child and for an adult, sea-bathing; sponging and friction of the body and limbs; mineral acids and other tonics internally. Good, nutritious diet; earthy matters, as lime-water and magnesia, to be given as often as possible in the food.

HIP-JOINT DISEASE.

Hip-disease prevails in cold, moist climates, and attacks chiefly children between the ages of seven and fourteen, though it is not unfrequently met with both before and after that time of life. The first symptom complained of is generally pain in the knee, which often exists for months before any indications can be perceived of the true seat of the disease. Sooner or later the patient is observed to walk awkwardly and less vigorously than usual; and, when the circumstances on which the difference depends are investigated, it appears that the affected limb is elongated and emaciated; that the convexity of the hip is flattened, so that the furrow between it

and the thigh is less distinct and more oblique in its direction, and that, in standing, the foot is advanced a little before the other one, with the toe slightly turned out; and that the patient does not rest his weight upon it. Pain is now felt in the hip-joint itself, and, though aggravated by motion, often becomes more severe from time to time, without any such cause of irritation. It is most apt to do so during the night, particularly when the weather is wet and changeable. In the second stage, the disease generally remains several months, and, sometimes, a year or two. At length, the symptoms which have been mentioned either disappear, and the limb recovers its former condition, or they are succeeded by others still more disagreeable. In the latter case, the limb becomes considerably shorter than the sound one; its mobility, at the same time, being much impaired, or altogether destroyed, and permanent rotation, either inward or outward, also taking place. Collections of matter now make their appearance, most frequently in the outer wall of the hip, but occasionally in the groin and hip. In some few instances, but very rarely, the fluid of these abscesses is absorbed, but the ordinary course which it follows is to issue externally through openings formed by ulceration, or artificially by surgeons. The patient then, after a tedious illness, becomes hectic and dies, or recovers with a stiff joint, and wasted, useless limb.

As this disease is generally pretty far advanced before it is discovered, but little can be done for it in the way of domestic treatment. As a general rule, counter-irritants in the first stages, such as blisters and setons, with a leech or two, if the swelling and inflammation accompanied with pain are great, will give some relief; but, for cure, the only plan is to give absolute rest to the joint, and sustain the system by tonics. Put the limb in a splint, the points of support being taken from the body so as to prevent motion; then, by weights to the foot and adhesive straps along the limb, cause such tension as will keep the head of the thigh-bone drawn away from its socket. This gives the inflamed surface of the joint a chance to heal.

SPINAL CURVATURE.

There are three varieties—lateral curvature, anterior curvature, and posterior curvature. The first variety, in which the spine is bent to the side, generally the right side, occurs more frequently than the others, and is the least serious. Posterior curvature is the bulging outward of the spine in the upper part of the back, making the subject what is called round-shouldered; and anterior curvature, (Pott's disease) is the bending inward toward the body of the spine,

through actual disease and destruction of the solid portion of the vertebral bones. This last is perhaps the only true disease of the spine, the other forms of curvature depending upon destruction of the balance of parts, and loss of the relation of the spine through undue development of one side or the other, or debility of the tendons and muscles.

In lateral curvature, the first circumstance that attracts attention is one breast appearing larger than the other, or so changed as to lead to a suspicion that it is growing out of its place; or the patient's friends note that the right shoulder appears enlarged, and farther removed from the spine than the left. At the same time there is generally an apparent enlargement of the left hip; so that the ordinary visible effects of the lateral distortion are, such a change in the appearance of the right shoulder, and hip on the opposite side, that mothers, in describing the state of their child, when the spine begins to be distorted, explain it as a growing out of the right shoulder and of the left hip. In this condition, the patient, when in certain positions, appears to have one leg shorter than the other; and, in walking, there is a constrained position of the head and neck, and inclination to one side, and also an inequality in the step. If, when these appearances present themselves, the spine be examined, it will be found nearly in the form of an italic *f*, and perhaps with a slight bend outward; and the whole of the right side will be of a rounded or barrel-like form, while the left is diminished and contracted, the ribs being closer together than is natural.

The immediate cause of the lateral curvature is debility, however induced, and affecting more especially the muscles and ligaments of the back. This debility may be induced by the want of sufficient general exercise, and especially of that which acts more immediately on the muscles of the back—by sitting long at work, or in practising on a musical instrument without artificial support—by a habit of lounging on one leg—by indulging much in sleep on a soft bed with a high pillow—by the fashionable but pernicious attempts that are made to correct the figure, or to model it into a certain form. This disease occurs most among young girls.

In the anterior curvature the spine is bent, so as to form an angle. In most cases of this kind of disease in the spine, the lower limbs are sooner or later affected with some loss of the power of voluntary motion, and ultimately with complete paralysis. Indeed, on minute inquiry, it is found that languor, listlessness, unwillingness to move, and unsteadiness in motion, have preceded the visible disease of the spine in a greater or less degree. This is a disease of scrofulous children.

In the treatment of lateral curvature, proper rest is of much consequence, but it must not be rest that fatigues, not prolonged, restrained, continual rest, as on the sofa made for these cases; but such rest as will render it impossible for the weak parts to suffer from the effects of exhaustion and languor, and the spine, in consequence, to become more distorted. Occasional ease and rest should, consequently, be given to the muscles of the spine by the patient's lying down, either on an inclined plane, or on a couch, and this she should do whenever she feels fatigued, or a want of such rest. To confine young ladies to the inclined plane, or to the couch for months together, often without their being allowed to rise during any part of the day, has been considered sufficient to cure the distortion; but the practice is extremely irrational and injurious, and should never be followed in lateral curvature. It invariably injures the general health, and, by augmenting the debility of the muscles of the back, and whole constitution, increases the curvature, and sometimes induces additional complaints of a serious nature. Proper exercise, giving up the habit or occupation that induced the trouble, and nutritious diet, will suffice for the cure. By proper exercise in these cases we mean only such as will excite vital action in the parts involved—as in the annexed table.

Table of gymnastic exercises for spinal curvature, by which the reader will perceive the slow and gradual manner in which patients, in such cases, proceed from slight exercise to those which require greater strength and exertion.

1. To make prolonged inspirations, sitting.
2. Prolonged inspirations, the patient standing, the arms fixed.
3. The same exercise, the arms hanging down.
4. The same, the arms extending horizontally.
5. The same, the arms fixed to a horizontal pole.
6. Deep inspiration, and counting a certain number without drawing the breath.
7. Movement of the feet on the ground, the patient sitting.
8. Deep inspiration, the patient lying on the left side, and leaning on the elbow.
9. In the same position to raise and to lower the body.
10. Walking slowly, and making deep inspirations.
11. Walking a little faster, and counting several steps without drawing breath.
12. Bending without rising, the weak hand fixed above.
13. Beating time with both hands fixed to the horizontal pole.
- 14, 15. Beating time, bearing a weight in the weak hand.
- 16, 17. Lifting up a small box from the ground with both hands, and then with the weak hand.
- 18, 19, 20. To declaim without moving, and to sing without drawing breath.
- 21, 22, 23. Movements of balance simple, in front and on one side.
- 25, 26, 27, 28. Develop other

motions of the arms, and to imitate the motion of sawing. 29, 30. These exercises with the weak hand only. 31, 32. To draw upon a spring with the weak hand only, and then with the arms and body fixed. 33. Seated on the ground, to rise with the assistance of the arms, the feet fixed. 34. Lying down horizontally, to raise the body without the assistance of the arms. Other exertions, of a similar kind, may follow these.

Posterior curvature may generally be remedied by position and the use of stays. It occurs mostly in near-sighted persons.

Anterior curvature must be treated as a true scrofulous disease, by cod-liver oil, iodine, iron, good diet, and pure air. Some deformity is inevitable.

SPRAIN.

This consists in stretching or tearing the ligaments of a joint. It is an accident that most frequently happens to the parts near the wrist and ankle. It causes extreme pain, sometimes faintness and vomiting. There is, generally, effusion of blood beneath the enlargements, hence the discoloration observable in these cases; commonly, also, there is rapid swelling, which renders it difficult to ascertain whether a dislocation or fracture has not taken place. Not only are sprains excessively painful at the time of their occurrence, but they are likely to lead to permanent injury, especially if neglected, and in this case they are more difficult to cure than either dislocations or fractures. It would be better to break a limb than sprain a joint, the former, in ninety-nine cases out of a hundred, being cured in the course of a few weeks, if the skin has not been broken, while the effects of the latter may, at best, remain for weeks or months, as weakness or stiffness of the joint.

In the treatment of sprains, perfect rest of the injured part is essential. We do not mean to say that they are never cured without this, but never so speedily and completely; and, without it, there is always great danger of bad consequences; therefore, the patient, as soon as it has been ascertained that there is nothing more than a sprain, should take to his couch or sofa, and remain there, especially if the injury is in the ankle or knee, or any part of the leg, in which case the limb should be kept in a horizontal position. Should the person, at the time the injury is received, know that it is only a sprain, he may prevent much of the evil consequence by the immediate application of cold, as by letting water run on the part from the faucet; this will prevent the congestion and swelling in great degree. Later, warm moist flannels should be applied to the part by day, and a warm bread-and-water poultice at night; should

this not reduce the swelling and subdue the pain in the course of twenty-four hours, leeches may be applied, and repeated two or three times if required. When the tenderness has in a measure subsided, a piece of lint dipped in vinegar, or diluted acetic acid, may be laid over the part; this will, probably, bring out a pustular eruption of the skin, and divert the low inflammation from the ligaments, at a time when stimulating friction could not be borne. When the pain has entirely ceased, and the joint has resumed its usual appearance, great caution is necessary in using it, as irreparable mischief often results from too great activity at that time. If it continues swollen, it should be bound up with straps of soap-plaster, or a roller, and stimulated by frictions.

CLUB-FEET.

These are nearly always congenital, that is, dating from birth; they are caused by the greater contraction of some muscles than others, by which the foot is drawn out of its natural position; it may be inward or outward, although the former is most frequently the case; or it may be an extreme elevation of the heel, so that the patient in walking rests altogether on the toes; this is the most simple form of distortion; it is commonly called the *horse-foot*, and is not so frequently congenital as the other forms. It may arise from some disorder of the system, and especially from nervous irritation; it is frequently accompanied by weakness of the ligaments of the ankle-joint, and in this case, if not soon attended to, the foot is likely to become so distorted that the patient in walking rests merely upon the outer edge. There are many mechanical contrivances for the cure of these various deformities, which do not amount to malformations, as in most cases the bones are merely drawn out of their natural position; but the best method is that of a subcutaneous division of the contracted tendons; it is recommended as well for infants of the earliest age as for those grown up: first, from the facility with which it is accomplished; secondly, because it incurs comparatively no risk, and scarcely any inconvenience; and thirdly, because you at once overcome the principal resistance, and render the after-treatment painless to the patient, and comparatively easy to the attendant, independent of which the child is not subjected to such constant confinement of the limbs as is absolutely necessary when you do not have recourse to an operation. You can allow exercise to be taken for a certain time during the day, and that, even in infants, must have a most beneficial effect. Let every mother, then, who has a child with a deformed foot, at once consent to the performance of an operation, which is almost sure to be successful,

and which involves at the time but little pain, which leaves no external wound, and causes no loss of blood. Splay or flat foot is the condition left when the arch of the foot is broken down by rupture of tendons.

ANCHYLOSIS.

A stiff joint, caused by the union of two separate bones by fresh osseous matter formed between them. This union is called either true or false: in the former case it is formed of lymph, thrown out by two ulcerating surfaces, blending together in one mass, and becoming organized; in the latter, it is merely a jointure of the ligaments, which, becoming stiff, results in immobility of the joint. If the stiffening of the joint is complete, there is no remedy for it, unless in a surgical operation; if, as is sometimes the case, it is only partial, warm salt-water bathing, with daily attempts at movement, and friction, with cod-liver or other oil, may do much toward a restoration of the limb to its former state of usefulness.

WHITE-SWELLING.

This is a disease of a chronic character that occurs chiefly in the knee-joint, although it may occur in the elbow, hip, and even the ankle joints; its occurrence elsewhere than in the knee is exceptional.

The first symptom is often a deep-seated, dull, heavy pain in the joint, which is not constant nor severe, but is usually much increased in using the joint. It is generally seated in one particular part of the joint. In white-swelling of the knee-joint, the patient keeps the knee bent, and, from the pain occasioned by extension, gets into the habit of only touching the ground with his toes. At first there is no external swelling or inflammation, but in the progress of the disease the knee swells, and gradually increases in size, but the skin is not at all altered in color, and the swelling is generally so firm as to yield very little to pressure. In the slowness or rapidity of its progress, and in the severity of the pain, the disease differs much in different cases. Sometimes the pain is very acute, and the swelling gradually attains to a very large size. In the end, collections of matter often form about the joint, and at length burst, and discharge a thin curd-like matter. But it is not unusual for the disease to continue for several years, without the formation of any abscess, particularly if the patient has been under correct treatment. When the disease goes on to a fatal termination, hectic fever arises, and destroys the patient, unless the limb be removed.

TREATMENT.—This disease is scrofulous in character, and the

treatment must combine means which are capable of restoring firmness and health to the general system, with those which are more directly calculated to arrest the progress of the local injury. Local measures are of the utmost consequence, but general means, of an invigorating nature, must be resorted to at the same time; and it is from this union, and from this alone, in the majority of instances, that any one can reasonably hope to conduct the complaint to a favorable issue.

One of the most satisfactory local applications is the sea-weed poultice made by bruising the common bladder sea-weed. If this is not accessible, an imitation of it may be made by wetting rags with salt and water, and the tincture of iodine, as the weed doubtless owes its efficacy to the iodine and the salt (chloride of sodium) that are in it. Lisfranc, of Paris, found benefit in the internal use of medicines analogous to sea-salt, as the muriate of baryta (chloride of barium).

The medicines to be used are iodine, iron, cod-liver oil, and quinine. An excellent way to combine the best of these is by putting two to four grains of the iodide of iron in every ounce of cod-liver oil. Another good form of iron is the tincture of the chloride. The chloride of barium may be added to this, or the latter medicine may be taken in solution alone, as sold by the apothecaries, five drops to a dose. It must be continued a long time, to have any effect.

At the same time, the patient must have the advantage of a pure country air, and as much of it as can possibly be taken without exercising the affected limb; and he must retire and rise early, and sleep on the mattress.

A generous diet is proper, but care must be taken never to load the stomach, or to take any indigestible food, however small in quantity, since excess or imprudence in these respects will rarely fail materially and immediately to injure the joint. The joint must be kept perfectly quiet, and the straight position of the limb is in general the best.

SPINA BIFIDA.

There is a tumor somewhere along the course of the spine that can be felt to fluctuate. It is most tense when the child is upright. It is semi-transparent, the skin being drawn thin, and showing the tissue of vessels through it. This is due to deficiency of part of the bones of the spine, by which the membranes of the spine and the spinal fluid force through and form the tumor beneath the skin. The disease is not necessarily fatal, but yet leaves small hope for life, especially if the tumor is large. Domestic treatment is useless.

WRY NECK.

By this distortion the head is either turned permanently one way or the other, or is drawn down to one or the other shoulder.

The cause may be unnatural contraction of the muscles of one side; or it may be paralysis of the muscles of one side, in consequence of which the natural contraction of the other side produces the deformity. In cases in which it is caused by unnatural contraction, division of the muscle by a surgeon is the best remedy, unless the contraction is dependent upon rheumatism, in which case the cure of the rheumatism will probably cure the deformity; where the cause is paralysis, tonics, stimulant applications, frictions, and electricity, should be tried.

THE CHAPTER OF ACCIDENTS.

WOUNDS.

ANY solution of continuity in a soft part of the body, occasioned suddenly by external causes, and generally attended with hemorrhage at first, is a wound. It may be one or the other of six kinds.

1. An *incised wound*, made by a sharp instrument, effecting a simple division of the fibres. 2. A *lacerated wound*, one in which the fibres, instead of being cleanly divided by a sharp instrument, are torn asunder by violence; the edges in this case are not straight, but jagged and uneven. 3. A *contused wound*, one made by a violent blow from some blunt instrument, or unyielding surface; this resembles the preceding. 4. A *punctured wound*, one made with a narrow, pointed instrument, as a sword or bayonet. 5. A *poisoned wound*, such as the bite of a viper, mad-dog, etc., or a slip of the knife in dissecting bodies in a state of decomposition. 6. *Gunshot wound*, which is at once contused, lacerated, and punctured.

The treatment of wounds must, of course, depend very much upon their character; if it be a clean cut or chop, we should first stanch the blood, by bathing it with cold water, cleaning away any extraneous matters with a soft sponge; then bring the edges of the wound together so that they shall unite evenly, and fix them so, with straps of adhesive plaster; a space being left between each slip for the escape of any blood or matter which may form. Should the wound be of any great magnitude, so that the edges gape when unconfined, they should be drawn together by means of two or three stitches; in making which, a threaded needle (a curved one) should first be passed through the flesh, inward, about one-quarter of an inch from the edge of the wound, then on the other side outward; the ends of the thread are then to be brought together and tied

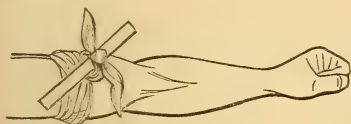
tightly ; the stitches should be an inch or more apart, they must not be drawn or dragged together with great force, or they may cut through the parts, nor must they remain in too long, or they may cause irritation : from two to four days will be sufficient for them to answer every useful purpose ; between them, strips of adhesive plaster should be placed, and, if a limb, a roller bandage should cover the whole. If the plaster is not readily procurable, a piece of linen may be bound round, and smeared with white of egg. Should the wound become painful and throb, and the patient feel chilly and uneasy, it is likely that there is matter forming which requires a way of escape ; in this case remove the plaster by washing it with a sponge dipped in warm water ; then either put on a warm poultice, or lint, dipped or saturated with warm water, with a piece of oil-skin over it, to prevent rapid evaporation ; this mode of operation should be continued until pain and inflammation cease, and nothing but healthy pus is discharged. Simple strapping with adhesive plaster will then be the best treatment.

This is the plan for clean incised wounds, and in other wounds the first attempt should be to give them the character of clean-cut wounds. If, for instance, there is a puncture, cut it down at both sides, to make it a wound of the first variety, because that is the wound that heals best. If it is a laceration, make the edges as clean as possible with the same view ; and, if contused, poultice, to hasten the sloughing, and bring it to the character of a simple wound as soon as may be.

In a wound of the scalp, wash the part carefully with cold water, and remove all dirt or other matter which may have got under the skin ; then replace any flaps or strips which may have been torn up, if not quite detached, clipping the hair off as closely as possible all around the wound ; then cover the edges with strips of plaster so as to keep them together, and lay over that a piece of lint soaked in cold water, and, to keep the dressing in its place, apply a cross-bandage ; never cut away any pieces of skin. The patient should be kept perfectly quiet, and on low diet ; a little saline aperient will in most cases be necessary to cool the system, and subdue inflammatory symptoms. The dressing should be kept moistened with cold water for two or three days, applied so as not to disturb them. Sometimes in scalp-wounds there is much hæmorrhage ; but this may generally be stopped after a little while by cold applications and pressure. If there is a single incision, and no great displacement of the skin, a stitch or two may be put through the edges, to draw them together. One of the greatest dangers to be apprehended from a wound of the scalp is erysipelas, which spreads very

rapidly over the head, extends to the brain, and causes the death of the patient, unless its progress can be arrested.

Lacerated or contused wounds bleed but little if any. In other wounds if the blood oozes slowly and is dark in color it is from veins, and may be stopped by the formation of a clot. Hasten this by washing the part with strong, cold alum-water. Bleeding is only dangerous when it is from cut arteries. This is known by the blood flowing by jerks, and by its bright-scarlet color. Pressure of the finger over the wound will, if the artery be small, stop the bleeding after a short time. If the bleeding recommences when the finger is removed, pressure may be made by twisting a handkerchief twice round the limb, over the wound; place a stick under the knot and give it several turns, so as to make firm pressure, thus :



The pressure should only be sufficient to stop the bleeding; beyond that it will bruise or injure the parts.

Or, a piece of rag several times folded, and tied down with a broad piece of tape, or bandage, thus :



If the bleeding proceed from a wound of an artery in a limb, and is not checked by either of the above methods, the current of the blood in the limb may be checked by pressure upon the main artery. Thus, if it be in the arm, firm pressure should be made downward in the neck, just above and behind the collar-bone. This pressure may conveniently be made by means of the handle of a door-key wrapped in a few folds of linen.

If the blood flow from a wound in the hand, it may be considerably checked, or altogether arrested, by bending the elbow-joint, and firmly pressing the lower against the upper arm, so that the hand shall be able to touch the shoulder. Wherever the wound may be, the bleeding is to be controlled by pressure near it, or pressure in the wound, or by the use of cold applications or strong styptics, as the tincture of chloride of iron.

BITES OR STINGS (*Poisoned Wounds*).

1. *Bites of Insects*.—These are simply *poisoned wounds*, and not what is generally understood by the word *venomous* or *deadly*.

The *symptoms* produced will vary according to individual constitution, state of health, etc. Generally speaking, they are slight and confined to the part. The swelling may, however, extend over

a whole limb, or even over the whole body, and be attended with sickness, faintness, etc.

TREATMENT.—If a sting be left in, it must be extracted with forceps or tweezers. The best local application is hartshorn or sal-volatile. If inflammation follow, it must be treated with cold lotions or poultices.

If the effects produced be of the more serious character named, stimulants must be given freely—brandy in hot water; ether; sal-volatile.

2. *Bites of Snakes, Dogs, etc.*—In the case of a snake-bite of a venomous kind, the effects are so rapidly developed that only the use of instantaneous and energetic means offers any chance of saving life. The adder-bite is occasionally followed in a short time by serious consequences.

These are only to be averted by the frequent administration of strong stimulants, such as teaspoonful-doses of sal-volatile in water every five or ten minutes, 'to an adult, and in reduced doses if a child. In some cases, life has been saved by the administration of a teaspoonful of *eau de luce* (a solution of ammonia with oil of amber) every five minutes, while the fearful state of depression continues.

The explanation of this mode of treatment is simply that, the poison acting with lightning-like rapidity, there is not time to remove it from the point at which it has been inserted, before it is traversing the whole course of the circulation. All that is left to us to do is to uphold the vital energies of the victim until it shall have lost its force, or been expelled from the system. How either may happen we know not. We may be thankful that life can sometimes be saved under such imminent danger.

The local application of water of ammonia must always be freely made. Keep cloths wet with it constantly applied to the bite. The ammonia must not be strong enough to burn, as that will prevent its absorption. Rattlesnake bites have been treated successfully with ammonia alone. It must be applied to the wound, and also be given by the mouth.

For dog-bites, apply a ligature tightly above the spot until strong caustic can be applied, or the part be removed by incision. If the bite be only superficial, the application of a stick of lunar caustic (nitrate of silver) will suffice. In deeper bites the stick of lunar caustic may be freely applied as soon as possible, if surgical aid cannot be procured to remove the part.

Hydrophobia seldom occurs. Compared to the number of dog-bites, its occurrence is as nothing. This fact, however, should not lead to neglect of the means above-mentioned, but should remove

those alarming apprehensions which alone may disorder the nervous system and lay the foundation of serious symptoms.

Never kill the dog where it is suspected that he is mad. He may not be mad, and this can only be shown by keeping him alive. If shown, it will have the best effect on the sufferer.

BRUISES.

SYMPTOMS AND CAUSES.—Swelling and discoloration of a part from violence applied; the color undergoing changes from black to green and yellowish green, in proportion as the blood effused beneath the skin is absorbed. If a great quantity of blood be effused, inflammation and abscess may follow.

TREATMENT.—Apply warmth and moisture by sponging, poultices, or lint or flannel wetted with tincture of arnica and water. Rest of the limb or part injured, and an elevated posture, to be maintained. As recovery takes place, the limb is to be very carefully and gradually made use of, especially if a joint have been bruised, otherwise serious inflammation and permanent disease may be excited.

Severer bruises may require the application of some leeches to the part, and attention to the general health.

CONCUSSION OR COMPRESSION OF THE BRAIN.

Injuries of the head from external violence are dangerous, as they involve the brain, which they do by compression or concussion. If the injury to the head be such that a portion of bone is driven inward, or blood is poured out on the surface of the brain, *symptoms* occur *denoting compression*; they are insensibility and loss of voluntary motion—laborious breathing, with a stertorous noise—slow, laboring pulse, but not generally intermitting—cold extremities—pupil of the eye much dilated, but no sickness, at least till the compression is removed by the use of the proper instrument, or other means. There is no return of feeling, so that the patient is insensible to pinching, or other injuries inflicted, until the pressure is taken off from the brain. For compression of the brain the resources of domestic practice are vain.

The *symptoms of concussion* are, total insensibility, the patient scarcely feeling any injury that may be inflicted upon him—loss of voluntary motion—difficult breathing, but in general without the stertorous noise—intermitting pulse—cold extremities—contracted pupil; after a longer or shorter time, there is sickness—the pulse and breathing become better, and, though not regularly performed,

are sufficient to maintain life, and to diffuse a little warmth over the extreme parts of the body; the feeling of the patient is now so far restored, that he is sensible if his skin be pinched, but lies stupid and inattentive to slight external impressions.

If it is simple concussion, a fatal termination is not likely; but sometimes the shock causes rupture of the substance of the brain itself, or its enclosing membranes, or of one or more of its blood-vessels; in this case the patient may never rally from his state of stupor, or, if he does, it will be but for a short time; there will probably be convulsions, paralysis, and apoplectic termination of his sufferings. All these are characteristic of *inflammation* (which see). In so acutely sensible an organ as the brain, it must be evident that an inflamed state of the tissue is by all possible means to be avoided; hence, when reaction sets in after the stunning and depressing effects of concussion have passed off, the most active measures should at once be taken.

If the alarming symptoms increase in intensity, there may be sufficient warranty for an unprofessional person to bleed; eight, ten, or twelve ounces of blood may be taken from the arm, or a dozen leeches may be applied about the head, or the patient may be cupped in the nape of the neck; the latter is perhaps the best mode of depletion, as it is effected quickly, and very near to the seat of disease. The hair of the head should also be cut or shaved off, and rags wet with cold water applied; if iced, so much the better.

It should be borne in mind that concussion of the brain is not always the result of a blow; it may be produced by a violent shock to the nervous system, such as that caused by coming down heavily on the feet from a leap. In cases of *fracture of the skull* (which see) the same symptoms as those described are likely to occur, as in these there are generally both concussion and its common result, inflammation.

The best treatment at the commencement of simple concussion is, to place the patient in a warm bed, to apply bladders of hot water over the region of the heart and stomach, and to employ gentle friction to the limbs. When he begins to recover, a little warm drink may be given, but no brandy, wine, or other stimulants, for all these cases are liable to be followed by inflammation, and we should have our eye to this probable consequence for many days after the receipt of such an injury.

DROWNING.

When any warm-blooded animal is immersed in fluid so that the lungs cannot obtain the supply of oxygen from the air which is ne-

cessary to render the blood fit for the purposes of life, the result must be a cessation of the vital functions—a suspension, temporary or permanent, of all the operations of existence; this state is called *asphyxia*. The first effort of a drowning person is to breathe; a forcible expiration of air takes place, which contracts the lungs, and an attempt at respiration immediately follows, but this is rendered impossible by the interposing water; again the effort is repeated, and a few bubbles of the air thrown out rise to the surface, but none returns to supply its place; the blood is passed back to the heart of a dark color, being loaded with carbon; sensibility and the power of voluntary motion begin to diminish, and quite cease directly the arterial blood has lost its bright-red color and become wholly venous. It is calculated that about one minute and a half of total submersion is sufficient to effect this change, and to extinguish animal life. But, by prompt and vigorous measures, it has been found possible to restore suspended animation, because the organic functions go on for a considerable time after apparent death, which is not real until those functions have wholly ceased; thus it is often with persons in a trance, or state of coma, exhibiting no signs of animation for a time, and yet eventually recovering the entire use of their limbs and faculties. The struggles of a drowning person, although undoubtedly violent, can be of but short duration; if unable to swim, and the fall into the water is from any height, he goes at once to the bottom, unless it is in very deep water; but, going down with inflated lungs, and a considerable quantity of air in his clothes, he soon rises again, although he does not probably get his head far enough above water to inhale much air, in the hurried gulp which he is permitted to make before he sinks again; he will probably come to the surface, or near it, a second, and a third time, but will, at last, sink to rise no more, until his body, by the gases generated in it by the process of decomposition, is rendered lighter than the surrounding fluid, and so rises and floats. In the violent efforts at inspiration which are made, some water must be swallowed, but not any thing like the quantity that is generally supposed; little or none of it gets into the lungs or stomach. There is always some of it, mixed with frothy mucus, and sometimes with blood, in the trachea and bronchial passages, and this gives rise to the supposition that the body is full of water; to get rid of which it was once the barbarous custom to suspend drowned persons by the heels, a sure method of preventing a restoration from a state of asphyxia. The irritation of the glottis, excited by the unsuccessful efforts to breathe, and the rush of water directly the mouth is opened, especially if it be salt water, are so great as to cause a strong cough,

which expels the fluid, and, when animation is altogether suspended, the passage is closed. There are indeed well-authenticated cases on record of recovery after five, six, ten, and even fourteen minutes' immersion; but these are rare exceptions, and it may well be doubted whether, in these cases, the immersion was total and uninterrupted. Still it is but right to give the patient the benefit of this doubt, and make a prompt and persevering effort to restore him to life, although he may have been in the water much longer than even the longest of the above-named periods; it is possible that he might have been able, by swimming, or taking hold of some floating substance, to keep his head above water for a time, or to obtain a partial supply of air by lifting it occasionally. External warmth, artificial respiration, friction, and electricity, are the four great agents to be employed in the recovery of drowned persons: Let the body as soon as possible—every thing depending on promptitude and energy—be removed to some convenient place, the warmer the better, wrapped in blankets, and laid out on the floor, or a bedstead, which, being somewhat raised, will give greater facility for the necessary operations; of course to strip off the wet clothes will have been the first of these; this should be done as soon as possible after the body is taken out of the water, and, if its removal to any distance is necessary, care should be taken to keep the head and shoulders well up, neither allowing the former to hang down backward, nor to fall forward on the chest. The patient then being placed on his back, with the forepart of the body raised by means of an inclined board, or pillows, the first care should be to free the mouth and nostrils of all obstructions; next, to apply warmth to any available part of the body; hot bran, salt, or sand, to the extremities; hot flannel to the chest, abdomen, and sides, with stimulant liniments and plenty of friction; camphorated oil, olive-oil with brandy or turpentine, or spirits of hartshorn, make the best liniments, and they should be rubbed on warm with flannel; then, too, efforts should be made to bring the respiratory system into play; not according to the old method, by thrusting bellows up the nostrils, or into the mouth, and so filling the stomach with wind, but by alternate pressure and relaxation of the ribs and parts adjacent, so as to imitate the motion caused by breathing.

For this purpose turn the body very gently on the side and a little beyond, and then briskly on the face, repeating these measures cautiously, efficiently, and perseveringly, about fifteen times in the minute, or once every four or five seconds, occasionally varying the side. On each occasion that the body is placed on the face, make uniform but efficient pressure, with brisk movement on the

back between and below the shoulder-blades or bones on each side, removing the pressure immediately before turning the body on the side. Or, with the patient on the back on a flat surface, inclined a little upward from the feet, draw forward the patient's tongue, and keep it projecting beyond the lips: an elastic band over the tongue and under the chin will answer this purpose, or a piece of string or tape may be tied round them, or, by raising the lower jaw, the teeth may be made to retain the tongue in that position. Remove all tight clothing from about the neck and chest, especially the braces. To imitate the movement of breathing—standing at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upward above the head, and keep them stretched upward for two seconds. (By this means air is drawn into the lungs.) Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest. (By this means air is pressed out of the lungs.) Repeat the measures alternately, deliberately, and perseveringly, about fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to induce circulation and warmth.

Electric shocks, slight at first, and gradually increasing in intensity, should also be passed through the upper portion of the spine and the chest, supposing the appliances are at hand for doing this; these are, however, but subsidiary means—external warmth and friction are mainly to be relied on, and these should be persevered in for several hours if necessary; strong smelling-salts, hartshorn or liquor of ammonia, may from time to time be applied to the nostrils, and a stimulant clyster be thrown up the anus, consisting of warm gruel with a tablespoonful of spirits of turpentine, or double the quantity of brandy. So long as unconsciousness continues, no efforts must be made to introduce any thing by the mouth; but, as soon as there is a natural action of the lungs and heart, a perceptible pulse, and other symptoms of returning consciousness, a tablespoonful of brandy, with about the same quantity of hot water, should be given, and this dose repeated every half-hour or so, until the patient is sufficiently recovered; he may then be placed in a warm bed, wrapped well in blankets, with hot applications to the feet if they still remain cold, and kept quiet for a time; he will most likely sink into a slumber, more or less disturbed, according as his brain and nervous system are able to shake off the effect of the violent shock which they have received. Heat, applied either by the warm-water or vapor bath, is an efficient auxiliary. As an incitement to long-continued exertion, we may mention that the recovery of a

drowned person has been effected after a perseverance in the necessary means for four, six, and even eight hours. After recovery, it is likely there may be considerable congestion of blood about the brain; therefore, if stimulants are considered necessary, they must be given with great caution, and there must be an avoidance of all undue excitement; the diet should be nourishing but easily digestible: quiet is the great desideratum.

HANGING.

Having cut down the body, immediately loosen the cord, or whatever it may be, about the neck; then, as, unless the brain is relieved of the congestion of the blood caused by the pressure and consequent stoppage of the circulation, there will be no chance of a recovery, an effort should be made to open the temporal artery, which is most large and prominent on the side of the temple, nearly in a right line with the top of the ear; it may be done with a sharp penknife; cold water should also be dashed in the face; and, if blood flows freely, there is a chance that efforts to inflate the lungs by the same means as those recommended under the head of drowning may be eventually successful. Persons will do well to make themselves acquainted with the exact situation of the main branches of the temporal artery, as there are several cases of emergency in which this knowledge is useful; it can be easily obtained by passing the hand over their own temples, and feeling where it beats. In suspended animation from drowning, hanging, or suffocation, the exact situation of the artery cannot be ascertained in this way, as of course there is no pulsation.

LIGHTNING-STROKE.

Death by means of this agent of Almighty power is not of unfrequent occurrence, and serious injury, short of death, sometimes results from it. The mischief in either case seems attributable to the shock received by the nervous system in the passage of the electric fluid through some parts of the body; sometimes, but not often, it is the result of a severe burning from the clothes being set on fire.

When a person is "struck by lightning," he will be killed at once, in which case there will be unmistakable signs of death; or only stunned, and then he will remain in a state of insensibility for a longer or shorter period, according to the shock which his system has received, or has strength to endure. There will be, probably,

slow and deep breathing, with a relaxed state of the muscular system, so that the limbs may be moved about anyhow, and will remain as they are placed. The state is, indeed, one of asphyxia, and should be treated like drowning. Artificial respiration should, if possible, be induced by the same means as those recommended under that head, and the animal warmth preserved by hot applications, friction, etc.; mustard-plasters to the spine and pit of the stomach, and a warm clyster, containing half an ounce of turpentine, with, as soon as the patient can swallow, a little warm brandy-and-water or sal-volatile, in twenty-minim doses, every quarter of an hour or so. It is a popular notion that the bodies of persons killed by lightning do not become rigid, and that their blood remains in a fluid state; this is quite contrary to fact.

The proper course to be adopted, in the event of being overtaken by a thunder-storm, is to keep at some distance from trees, or tall buildings of any kind. Do not put up an umbrella, for the metal in it will attract the lightning, and a good soaking is a protection from the lightning; for this reason, any thing metallic about the person should be got rid of or covered. If it be in a wide, open plain, where the body is the highest object, crouch as close to the ground as possible. In a room, do not stand between the fireplace and window or doors, for the course of the electric fluid appears to be much influenced by the current of air.

SUNSTROKE.

This is not identical with apoplexy, and the brain is perhaps principally affected in those only in whom it was not healthy before. The sufferer from *coup de soleil* is in a state of general exhaustion from exposure to great heat, and the lungs, heart, liver, skin, and kidneys, are as much deranged in their functions as the brain. Congestion of the lungs is found as often as congestion of the brain.

Protect the person from the sun's rays, and rouse by application of cold water; pour it on the head and on the throat and chest and stomach; continue this at intervals till the person is able to swallow, and then give ammonia in brandy-and-water.

SUFFOCATION AND SUSPENDED ANIMATION.

This results from a stopping of respiration either by intercepting the passage of air to and from the lungs, or by inhaling smoke, dust, or air that is not respirable. Thus, death by hanging, drowning, stifling by carbonic-acid gas, or other mephitic vapors, are each and all suffocation; although the term is usually considered to

signify only death by agents which do not compress the windpipe, but, by stopping the supply of oxygen to the lungs, render it unfit for circulation, and poisonous to the system. Suffocation often arises from very trivial causes; too many clothes over the mouth of an infant will produce it; swallowing a piece of food too large for the passage; even a small piece of potato-skin over the opening of the larynx, so as to stop the passage of air, has done this; so have a pin and a cherry-stone accidentally drawn into the air-passages, and husks of wheat drawn into the windpipe, as was the case with a young man whose head was thrust into a sack of bran. Infants have often been suffocated by being overlaid by heavy sleeping nurses or mothers, and they are always in danger of being so, when left with a bag of wash-leather, or piece of rag filled with sugar, or a raisin, to suck, and be kept quiet. People have lain down by lime-kilns and charcoal-fires, and met their death by asphyxia, which is but another name for suffocation.

In every case of suspended animation the great object is to excite respiration. For this, the fifth pair of nerves should be excited by forcibly dashing very small quantities of cold water on the face, or by stimulating the nostrils by ammonia, snuff, pepper, or the point of a needle.

The spinal nerves should be excited by forcibly dashing cold water on the thorax and on the thighs, or by tickling, or stimulating the sides, the buttocks, the arms, the soles of the feet, etc.

If these attempts to excite respiration fail, inspiration is to be imitated by artificially distending the lungs.

To effect this, the practitioner's lips are to be applied to those of the infant, or adult, closing the nostrils of the patient, and gently pressing the trachea upon the œsophagus. The chest is then to be pressed, to induce a full expiration, and allowed to expand, so as, if possible, to effect a degree of inspiration.

But it is important, in doing this, that the practitioner himself should previously make several deep and rapid inspirations, and finally a full inspiration. In this manner the air expelled from his lungs into those of the patient will contain more oxygen and less carbonic acid, and consequently be more capable of exciting the dying embers of life.

In the midst of these efforts it should, in the next place, be the office of two other individuals to maintain or restore the temperature of the patient, by gently but constantly pressing and rubbing the limbs between their warm hands, passing them upward in the direction of the venous circulation.

When respiration is established, the face must still be freely ex-

posed to the air, while the temperature of the limbs and body is carefully sustained.

As soon as possible, a little warm liquid, as barley-water, at blood-heat, should be given; in the case of infants, by means of the proper bottle, furnished with leather or soft parchment. A teaspoon must not be used, for fear of choking. If the infant draws the liquid through its own lips by its own efforts, there is no danger.

Lastly, if all these remedies be tried in vain, galvanic or electric shocks should be passed from the side of the neck to the pit of the stomach, or in the course of any of the respiratory nerves, and their appropriate muscles. No time should be lost in sending for a proper apparatus; but, should the lapse of an hour, or even more, take place, before it can be obtained, still it should be sent for and tried.

INTOXICATION.

A drunken person is, to all intents and purposes, poisoned, and it is only a question of the quantity taken, or the power which the system possesses of resisting the influence of the deleterious matter forced into it, as to whether he shall die or recover.

Some indication of the extent of danger to life, which exists in an intensely-intoxicated person, may be learned by the non-contractibility of the iris. If this shows no sensibility to light, or to any sudden motion made near it, there is little hope of recovery. The stomach-pump should be used to get rid of as much alcohol as possible, and sickness excited by mustard, or any emetic, except antimony, which is too depressing; vinegar-and-water, hartshorn, or sal-volatile, may be freely given; cold water poured on the head in a shower; a turpentine injection thrown up, and mustard-plasters applied to the pit of the stomach and down the course of the spine. For ordinary drunkenness, pour cold water from a height on the back of the head. Use this remedy with caution, as it will be dangerous if the depression is great. (*See Delirium Tremens.*)

BURNS AND SCALDS.

Burns, the effects of heated solids, destroy more deeply than scalds, the effects of heated liquids; the latter, however, are usually the more extensive. In scalding, blisters are usually formed. In burning there may be blisters, or the skin may be charred and its structure destroyed. The latter are, therefore, the more severe in-

juries. The danger is in proportion to the extent of the skin destroyed, and the nature of the part injured.

TREATMENT.—In severe cases, if the burn have been occasioned by the clothing taking fire, the clothes are to be immediately removed, or cut off as quickly as possible, taking all possible care not to break any blisters. Those portions that stick should not be disturbed. The rest of the body should be kept warm. If there be shivering or faintness, warm wine-and-water should be given.

In either severe or slight burns or scalds, the most correct principle to guide the selection of applications is to keep up the heat of the part at first, and bring it down gradually to the ordinary temperature. The first and most important object is to protect the surface from the action of the air. For this purpose, flour, cotton-wool, and wadding, are the readiest means. In slight cases these alone will be sufficient, and may be left on for several days. In severer and more extensive injuries the parts should be covered with strips of linen or lint spread over with ointment, consisting of equal parts of yellow basilicon and spirits of turpentine.

The dressing should be changed once in twenty-four hours, or a liniment, as follows :

Lime-water,	. . . . .	1 part.
Linseed-oil,	. . . . .	2 parts.
Well shaken together, and applied by lint or linen soaked in it.		

Cold applications are objectionable, as the relief they afford is but temporary, while the reaction which follows their use augments the pain and inflammation, and in extensive burns or scalds produces a dangerous depression of the system.

The water contained in the blisters is to be carefully retained, as it affords protection to the tender skin beneath.

That which is most to be apprehended in severe burns is the great constitutional depression which often follows the excitement and severe pain ; especially is this the case with children, and when the seat of this injury is the chest or abdomen, or other vital part ; hence the effects should be closely watched, and stimulants administered, if there are such symptoms as shivering, pallor of countenance, sinking of the pulse, or coldness of the extremities. Ammonia, wine, or spirits, must then be given in doses sufficient to arouse the failing powers, without too much exciting the brain. If there is excessive pain, a slight opiate should be administered to allay the irritation of the nervous system, which, however, frequently receives so severe a shock as to lose its sensibility for a time ; and when this is the case there is great reason to apprehend a fatal

result. A burn, if properly treated, and unless very severe, will generally do well, and require little after-dressing; but if the blisters are suffered to break, and the true skin beneath becomes inflamed by exposure, matter will be secreted, and troublesome ulcerations formed. Bread-and-water poulticing will be the best treatment in this case, with Goulard lotion, if there is much inflammation, or an ointment composed of extract of Goulard, one drachm, mixed with one ounce of fresh lard; this should be applied spread on soft linen.

When the burn is deep, after the flour has been on for some days, poultices as above should be applied until the coating of flour all comes away, and the wound looks clean and clear; after which the simple water-dressing will be best, and when nearly healed the Goulard ointment as above.

When parts immediately contiguous are involved in the burn, care must be taken to interpose dressings, or they may become permanently united.

After the more immediate constitutional effects of a severe burn have passed off, it will be necessary to be careful as to the patient's diet, which should be sufficiently nourishing and stimulative, especially while there is any discharge; taking care, however, to reduce it if febrile symptoms should set in. So constantly are these painful accidents occurring, and so frequently does it happen that the care of a medical man cannot be obtained for them, that it behooves all heads of families to make themselves acquainted with the best remedial measures. When they are very severe, every possible effort should be made to obtain medical aid; if they are but slight, this may well be done without. It should be borne in mind that the principal aims in the treatment of such cases are, first, the protection of the injured parts from atmospheric influence; secondly, to keep down inflammatory action, both local and constitutional; and thirdly, to soothe the nervous irritation which may arise, and to sustain the system should too great depression take place.

COLD (*Frost-bite, etc.*).

Intense cold produces drowsiness, paleness of surface, feebleness of pulse, and death.

If a part of the body, as the nose, ears, toes, be exposed to severe cold, it is very prone to become frost-bitten; it turns of a dead-white color, then livid and shrunk. If not carefully treated, mortification will follow.

TREATMENT.—Rub the part with snow until reaction is established; then with cold water. The patient should very gradually

be exposed to warmth, lest the reaction should be too great. If a person who is insensible from exposure to cold is taken into a warm room at once, he will almost certainly die. Stimulants may be very gradually given as the patient is brought from one room to another till he reaches a proper temperature.

CRAMP.

An involuntary and painful contraction of the muscles, often causing the most acute pain; the legs and arms are the parts most likely to be affected by it, but especially the former; sometimes it is general, as in cholera, affecting the whole muscular system, but most frequently local. Its principal exciting causes are pressure and irritation, arising from the presence of indigestible food in the stomach, or a superabundance of acid in the bowels; pregnant women are much subject to it, and those who have worms; it often accompanies obstructed menstrual discharges, and impeded circulation; when it affects the arms and fingers, there is reason to apprehend disease of the heart, or of the large vessels of the chest, and medical advice should be at once sought. Sudden and prolonged cold will often produce general cramp, depriving the patient of all power of movement; hence it is that bathers, who at one moment are floating buoyantly on the wave, full of life and activity, sometimes sink the next. If the swimmer is seized by cramp when in deep water, and far away from help, there is no hope for him; he goes down like a stone.

The best immediate remedy for local cramp is friction; let the leg, or other part affected, be well rubbed with soap or camphor liniment, mixed with an equal part of turpentine or spirits of harts-horn; sometimes relief may be had by tying a band of some kind tightly round the affected limb between the seat of the pain and the body of the patient; this is a perfectly safe process; not so is the practice of standing upon a cold hearthstone, from which many find relief; this is likely to strike a chill through the whole system, and occasion permanent injury to the health.

In all cases the bowels should be attended to, and freely evacuated by means of warm, stimulating aperients, such as the following:

Powdered rhubarb and magnesia, of each	1 drachm.
Spirits of sal-volatile and tincture of ginger, of each . . .	2 drachms.
Peppermint-water,	6 ounces.

Mix, and take a tablespoonful every three hours until the effect is produced.

If there is reason to suspect the presence of worms, take first two grains of calomel mixed with sugar, and put on the tongue; three hours after, an active purgative.

CHOKING.

When a piece of food too large for the passage sticks fast in the gullet, and cannot be removed, death from suffocation will be likely to ensue. Sometimes the obstruction can be pushed down into the wider part of the passage by means of a finger passed into the opening of the gullet; or, if it cannot, this may be accomplished by means of what is called a *probang*, which is a smooth, round piece of whalebone, about two feet long, and as thick as a wheaten straw, to the smallest end of which a piece of sponge about the size and shape of a marble is firmly attached. Something like this may be extemporized out of the whalebone rib of an umbrella, or a very thin cane, having a knob of some soft yielding substance fastened to it. In using the instrument care must be taken to have the patient's head thrown well back, and to let the chief pressure be upon the back of the throat; the instrument must be well oiled or greased in some way, and pushed steadily and quickly down until the obstruction is felt to give way. If this should be a fish-bone or other jagged object, which is likely to penetrate the membrane, and get firmly fixed, the removal is not so easily effected. A little dexterous management of the fingers will often do this, as it is seldom far in the passage. If the obstruction remain long, and be of the nature last mentioned, it may cause inflammation and swelling of the part. If the obstruction be small, such as a single spine of fish-bone, some crumb of bread well masticated will probably carry it down. When it is removed there will commonly be a sensation as though the obstacle were still lodged in the throat, which keeps up the uneasiness in the patient's mind; but, if still there, a distinct pricking may always be felt when the throat is pressed.

There is sometimes a spasmodic affection of the gullet which renders the act of swallowing difficult, and induces a belief that something is lodged there; this may be attributed to spasm or hysteria, if it is not caused by the effort to swallow too quickly.

PINS AND NEEDLES.

Pins and *needles* are sometimes swallowed, the careless and reprehensible practice of holding them in the mouth conducing to this result; unless they occasion inconvenience by sticking in the throat, it is better to let them alone; the latter will generally work their way out of the body, and the former, which, on account of their heads, cannot so well do this, will, in process of time be dissolved by the action of the acids of the stomach on the softer metal of which they are composed; a little vinegar taken now and then will

assist this process; if they occasion much pain, and a pricking sensation in the bowels, demulcents and gentle aperients should be administered; castor-oil is, perhaps, the best. When a needle, in making its way out of the body, approaches the surface, there will be a black dot or a line visible, with perhaps inflammatory symptoms; it is best in this case to cut through the intervening skin with a lancet, and extract the intruder by means of small tweezers; quite large needles have in this way been taken out of persons who were not at all aware how and when they got in.

FAINTING (*Swooning*).

Temporary depression of the animal and vital actions, with paleness, cold perspiration, pulse feeble or absent from the wrist, respiration and sensation suspended for a short time.

This state results from strong impressions, moral or physical, made upon the nervous system; exhaustion consequent upon over-exertion; fasting; debility; loss of blood; affections of the heart; sudden change of posture in delicate states of health, or in disease, e. g., cholera, etc. Sudden loss of large quantities of fluid, etc., as in the operation of tapping, and after delivery in child-birth.

TREATMENT.—Let the patient be laid on the back, with the head placed low; plenty of fresh air; sprinkle the face with cold water; give stimulants, as brandy-and-water, or sal-volatile from one-half drachm to one drachm in water, carefully, as the patient may not be able to swallow freely.

ULCERS.

The healthy ulcer has a florid appearance; the little red eminences, called granulations, are small and pointed at the top; the surface of the sore is even with the surrounding skin, or only a little above it; it secretes a bland, whitish, opaque matter, and its edges are thin, and even with the surface. Here the healing process goes gradually on until a cure is effected; and all that is necessary to be done, in the generality of cases, is, to avoid every source of irritation, and to apply the cold-water dressing. Dip some rag in cold water, wringing it gently, lay it over the ulcer and inflamed parts, and then cover the whole with a piece of oiled silk. Renew this water-dressing five or six times a day; and wind over the whole a small linen bandage.

The irritable ulcer is exquisitely tender and painful, although it may be but slightly inflamed; its surface is unequal, being in some parts high, in others very low, and without the florid appear-

ance of a healthy ulcer; and the discharge is either matter mixed with blood, or of a thin, irritating nature. Often the margin of the surrounding skin is jagged and sharp. No dressing is in general half so efficacious in it as the cold-water dressing.

The indolent or chronic ulcer is characterized by the glassy and semi-transparent appearance of the surface, in which there is little or no attempt toward healing, the sore remaining nearly in the same state for a considerable time. The languid, indolent ulcer requires stimulating applications locally, in conjunction with a nutritious diet and strengthening medicines. It may be dressed, once or twice a day, with ointment of nitric oxide of mercury, or with tar-ointment mixed with an equal quantity of sublimed sulphur. Sometimes a stimulating lotion will answer better, as the solution of lunar caustic, five grains to an ounce of water, or a solution made by mixing together eight grains of oxymuriate of quicksilver and six ounces of lime-water, either of which may be applied twice daily. The part must be constantly bandaged after being dressed, and the patient should take gentle exercise.

It is absolutely necessary that, in every case of obstinate or severe ulceration, the patient should endeavor to amend the state of the general health, by means of a nutritious diet, recourse to pure air, and the use of alterative and strengthening medicines; for, if an ulcer be not healthy, it will always be much assisted in healing by this attention, and, when unusually obstinate and painful, will be quite intractable without it. In addition, therefore, to any local application made use of, let the patient take the iodide of iron or iron and quinine, or powder of sarsaparilla, twice or thrice a day, the bowels being kept regular by the occasional use of an aperient. The diet must be such as will invigorate and rectify impaired vital power. Whenever severe pain attends, a pill composed of a quarter of a grain of acetate or muriate of morphia and a grain of calomel will afford the most effectual relief.

As it is frequently impossible that strict rest and the required posture can be observed, if the ulcer be on the leg the circulation in the limb may be favored and supported by bandaging the leg carefully with a calico bandage from the toes to the knee; or by surrounding the limb to the same extent with strips of adhesive plaster, leaving the space of the ulcer uncovered, in order that ointments or other applications may be changed as often as needed.

GANGRENE.

Its *causes* are excessive inflammation, which occasions a destruction of vital power in the part or parts which it attacks; or it may

be a less degree of inflammation acting upon a part the vital powers of which are feeble; locally so, or showing the general debility of a weakened constitution. In this case, gangrene sometimes supervenes without any great amount of previous inflammatory action. A broken, or otherwise wounded, or ulcerated limb is most commonly the seat of gangrene, or it may be the fingers or toes, after they have been frost-bitten or crushed, or in some way deprived of their nervous energy.

SYMPTOMS.—When the result of high and active inflammation, there is severe pain in the part attacked, and generally a considerable degree of swelling; a blush overspreads the part, which gradually deepens to a dull purple, or brownish red; if there is a running sore, the discharge from it will cease; very soon the cuticle will be raised by a vesication, from which, on breaking, will issue a bloody serum, after which the skin assumes a decidedly gangrenous appearance, that is, it becomes of a dull, yellowish-green color, and is perfectly insensible. During the progress of these changes there is great constitutional derangement, marked by a high degree of irritative fever, with a small, weak, quick pulse, generally irregular, and sometimes intermittent; often, too, there are vomiting, and delirium, and hiccough; the latter is one of the most characteristic signs of the disease in its more advanced stage, especially when gangrene arises from a diseased state of the constitution; then, the stomach is extremely deranged, and this derangement of the stomach is followed by a spasmodic contraction of the diaphragm, producing the cough. This symptom, therefore, does not arise from any alteration in the diaphragm, but from its sympathy with the deranged state of the stomach. When gangrene is the result of a low degree of inflammation acting upon a weak system, there will probably be an absence of the febrile symptoms, or they will be but slight; there will be the same discoloration of the skin, vesication, discharge of bloody serum, and morbid appearance; this is also the case when the disease is produced by extreme cold.

TREATMENT.—In the active inflammatory stage, local depletion by means of leeches should be resorted to, and also bleeding from the arm if the state of the patient's system is such as to warrant this; but not more than eight ounces of blood should be taken at one time, lest the vigor of the circulation be too much diminished, and, as a consequence, the nervous power of the constitution also. Soothing fomentations and warm poultices should be applied to the part; calomel, or some other mercurial preparation, should be administered, to keep the secretions of the liver and intestinal canal in a proper state, and opiates to tranquillize the system. When

gangrene is the result of cold, the treatment will be somewhat different. In this case the part affected becomes first white, and a restoration of the suspended circulation should be attempted by rubbing with snow, if it can be procured; if not, with a coarse cloth or flesh-brush. No heat must be applied; even that of the bed-covering will sometimes set up inflammation. Camphorated spirit of wine is, perhaps, the best liniment that can be used. After the rubbing, if it appears to be at all effectual, apply cold poultices. If, in spite of these efforts, a discoloration of the skin shows that gangrene has really commenced, apply some gentle stimulus to the part, such as a poultice of linseed-meal mixed with beer-grounds, and also spirit lotions, to keep the disease from spreading. The constitution of the patient must be soothed and supported by some anodyne and stimulant; Sir A. Cooper recommends from seven to ten grains of carbonate of ammonia, with twenty or thirty drops of tincture of opium, two or three times a day, or more frequently if required. In hospital practice a bolus composed of five grains of carbonate of ammonia, with ten grains of musk, is given every four hours in such cases, with excellent effect. Bark was formerly much used, but quinine has now taken its place. When the gangrene has proceeded to a sloughing sore, a port-wine poultice is a good application, as are spirits of turpentine, to stimulate the parts.

FISH-HOOKS.

If a fish-hook is caught in the flesh, depress the shank so as to find the exact whereabouts of the point, then with a sharp knife cut through all the flesh included in the hollow of the hook between shank and point. This will seem like making a large wound, but this wound will give eventually far less trouble, and will heal better, than would one left by the most skilful extraction of the hook without cutting.

POISONS.

The action of a poison may be both local and general, or remote; the first, in chemically destroying the part with which it comes in contact, as the mineral acids and alkalis do by corrosion; as cantharides and mustard, by irritating and inflaming; or as morphine, aconite, prussic acid, etc., by paralyzing the sentient extremities of the nerves. As instances of the remote action, we may mention that of cantharides on the urinary organs; of mercury on the salivary glands; of digitalis on the heart; and of strychnine on the spinal marrow. Again, poisons generally, whether they corrode, irritate, or produce no apparent alteration on the part to which they

are applied, destroy life by producing a fatal impression upon a remote vital organ.

With a view to furnish a general theorem for the administration of antidotes, Dr. Paris drew up the following synoptical table of poisons :

CLASS I.

Poisons which act primarily through the medium of the nerves without being absorbed, or exciting local inflammation.

ORDER 1.—By which the functions of the nervous system are suspended or destroyed.

Death by Suffocation from Paralysis of the Respiratory Muscles.—These are alcohol, aconite, camphor, essential oil of almonds, salts of lead, croton tiglium, opium, oil of tobacco. The fourth and seventh of these may also act by being absorbed; the third and fifth may have also a local action.

ORDER 2.—By which the heart is rendered insensible to the stimulus of blood.

Death by Syncope.—These are, infusion of tobacco, upas antiar, etc.

CLASS II.

Poisons which, by entering the constitution, act through that medium, with different degrees of energy, on the heart, brain, and alimentary canal.

Death from many Causes.—These are, arsenic, camphor, coccus indicus, hellebore, hemlock, henbane, lettuce, meadow-saffron, muriate of baryta, nightshade (deadly), opium, prussic acid, savin, squill, tartar-emetic. Of these, camphor, nightshade, and opium, have also a local action.

CLASS III.

Poisons which, through the medium of the constitution, expend their energies upon the spinal marrow, without directly involving the functions of the brain.

Death by Tetanic Convulsions.—These are, nux vomica and the whole tribe of *strichnos*.

CLASS IV.

Poisons which produce a direct local action on the mucous membrane of the alimentary canal.

Death by Gangrene.—These are, bryony, caustic alkalies, concentrated acids, corrosive sublimate, cantharides, colocynth, elaterium, euphorbium, hedge-hyssop, muriate and oxide of tin, nitrate of silver, nitre, ranunculi, zinc, verdigris.

With those of the *irritant* class, we have generally violent vom-

iting, purging, and intense pain in the abdomen, usually occurring within half an hour of the swallowing of the deleterious substance; with those of a corrosive nature, the effect is immediate, an acrid, burning sensation in the throat attending the act of swallowing the poison. The *narcotic* class produce vertigo, paralysis, coma, and sometimes tetanus; these have no acrid taste, and do not, like the first, inflame the viscera, nor cause purging and vomiting. *Narcotic irritants* have a compound action—that is, their symptoms include those produced by both the other classes. When any of these symptoms come on suddenly to one who, up to the time of the attack, has appeared in good health, and especially if it be soon after swallowing either solids or liquids, we may reasonably suspect that he is poisoned, and should at once endeavor to find out what he has taken likely to produce such results. We should, however, bear in mind that there are certain forms of disease which, as it were, simulate the symptoms of poisoning: such are cholera, enteritis, peritonitis, strangulated hernia, hæmatemesis, etc.

In apoplexy, epilepsy, some diseases of the heart and brain, and rupture or distention of the stomach, we have the same symptoms as those of narcotic poisoning. It behooves us, therefore, to make close inquiry into the cause of the dangerous symptoms, and not adopt remedial measures too hastily, although we know that promptitude in adopting the right measures is of vital importance. Hence we see how desirable it is that one skilled in the diagnosis of disease should be at once summoned in a case of suspected poisoning; if the aid of such cannot be procured at once, it is better to adopt such means as a limited knowledge will suggest than to let the patient perish for want of help. It is popularly believed that there are certain antidotes for particular poisons, but this is not the case; there are, therefore, a few principles to be kept in view all through the course of treatment: first, to remove the poisonous matter from the stomach as soon as possible; second, to protect the coats of the stomach against the action of the poison, by involving it in some viscid substance; third, to act upon the substance chemically so as to effect a change in its nature—to render it inert or innoxious—this, as we have shown, can in some instances be done; fourth, to combat the constitutional effects of a poison by such means as applying stimulants and antagonists to narcotics and the like.

IRRITANTS.

In the first class, we have the strong acids and alkalies, including sulphuric, nitric, muriatic, and oxalic acids, with the several forms

of caustic potash and ammonia; arsenic, corrosive sublimate, calomel, and other preparations of mercury; the sugar, carbonate, oxide, and other preparations of lead; Brunswick and mineral green, Scheele's emerald, with blue vitriol, and other preparations of copper; chloride of zinc, with the sulphate of the same metal, commonly called white vitriol; nitrate of silver, tartar-emetic, savin, spirits of turpentine, cantharides; sometimes fish, especially shell-fish; meat, either too fresh or too stale; and game, eaten in the condition termed "high."

All these, then, and a variety of others, which might be named, are irritant poisons, which, when swallowed, usually occasion vomiting very soon, with the common signs of inflammation of the bowels; some of them, which are corrosive, such as the mineral acids and alkalies, produce a burning sensation extending from the gullet to the stomach, directly they come in contact with the mucous membrane, of which they effect the destruction; corrosive sublimate does this particularly, and is also instantaneous in its effect; the other substances above enumerated are not so rapid, although they are equally if not more dangerous.

ANTIDOTE TO IRRITANT POISONS.

For the mineral acids the readiest antidote is water, of which as much as possible should at once be drunk; this will dilute them, and then neutralization may be effected by carbonate of soda or potash, magnesia, soap in solution, chalk, whiting; or, if these are not to be had, old mortar or plaster scraped from the walls or ceiling of a room; ice and iced water are also beneficial. Oxalic acid also requires the same kind of treatment; and as much of this as possible should be removed by the stomach-pump or emetics. For the alkalies, such as pearlash and ammonia, vinegar may be given, or any diluent acid, such as lemon-juice, or tartaric acid, mixed with mucilage or starch. Arsenic should be removed from the stomach as quickly as possible, and the hydrated peroxide of iron given in free doses with plenty of water.

Corrosive sublimate, although not less deadly in its effects, is more manageable by simple albumen; the patient should, therefore, swallow white of egg in considerable quantity, and then take a dose or two of castor-oil, with twenty drops of laudanum in each, to soothe the irritation of the bowels and carry off the poison, which the oil also helps to decompose.

For calomel, red or white precipitate, or vermilion, the same course as above recommended should be pursued.

Red lead and the carbonate of that metal are both insoluble substances; the great object, therefore, must be to effect their removal by purging and vomiting; the bowels may be in some measure protected from their action by mucilaginous drinks. Here, again, castor-oil is the best purgative. The same remedies should be used for sugar of lead, which is a soluble salt.

For nitrate of silver, give a tablespoonful of common salt, with plenty of warm water. This decomposes the poison, and acts as an emetic also.

For blue vitriol, verdigris, and the other preparations of copper, give white of egg and castor-oil. Several of these are themselves emetic, and will work their own expulsion with a little assistance, as will tartarized antimony, generally called tartar-emetic; but, to prevent bad after-symptoms, it is best to neutralize the antimony with some bark, or galls, given in the form of powder or decoction; to relieve the sickness, give opium, in grain-doses, every six hours.

Chloride of zinc has a very rapid corrosive action; it readily dissolves; if speedily diluted with warm water, will itself act as an emetic. Encourage the vomiting, and after it give castor-oil.

Spirits of turpentine, nitre, savin, and cantharides, besides their irritant action on the bowels, act specifically on the kidneys; for these give emetics and castor-oil, with plenty of barley-water, or other demulcent drinks, with opiates.

Fish, meat, and game, are generally beyond the reach of emetics before they produce their peculiar symptoms of poisoning; give, therefore, a full dose of castor-oil, with laudanum, and if, as is often the case, there are colicky pains, give calomel and opium, of each a grain, every four hours, to the extent of six doses if required.

NARCOTICS.

Under the head of *Narcotic Poisons* we must place prussic acid, essential oil of bitter almonds, opium and its preparations, woody nightshade, alcohol, ether, chloroform, etc.

ANTIDOTES TO NARCOTICS.

The decomposition of the first two of these may be effected by means of ammonia; therefore give a teaspoonful of sal-volatile or hartshorn in water; apply strong liquor of ammonia, or smelling-salts, to the nostrils; and, to stimulate the nervous system, pour on the back of the head and down the spine a stream of cold water from a jug held at a considerable height. Opium should be removed from the stomach by means of the pump, or strong emetics; sul-

phate of zinc in thirty-grain doses every quarter of an hour, with plenty of warm water, is the most effectual. Great drowsiness and stupor are produced by this poison, which must be combated by all possible means: a teaspoonful of sal-volatile in strong coffee is the best stimulant; it should be repeated about every half-hour. For at least twelve hours after swallowing the poison the patient must not be suffered to give way to the drowsy inclination, for if he sleeps he will probably wake no more; he must be kept constantly in motion, and be stimulated by pinching, pricking, flagellation with switches, or any means that may suggest themselves; when it is found that the patient can keep awake for an hour by the simple exercise of his will, he may be suffered to sleep, but not before.

Woody nightshade and hellebore must be removed from the stomach by the means above directed; the soporific effects are not so strong as those of opium, and may be overcome by gentler means. Alcohol, ether, and chloroform, should be removed by the stomach-pump or emetics. Many deaths have occurred from inhalation of the latter, and in very few cases has it been found possible to restore animation when the state of syncope has supervened; efforts should, however, be made to introduce air into the lungs, and to stimulate the muscles of respiration to action by passing the finger down the throat and tickling the entrance of the wind-pipe, etc., the same attempts to inflate the lungs as those directed under the head. *Drowning* should be persevered in for a long time. Water should be gently sprinkled, but not dashed, in the face.

NARCOTIC IRRITANTS, AND THE TREATMENT.

The *narcotic-irritant poisons* are, nux vomica or strychnia, colchicum, white hellebore, digitalis, belladonna, conium, monkshood, laburnum-seeds, yew-berries, poisonous mushrooms, etc.

The first of these is one of the most deadly of vegetable poisons; but, if free vomiting can be produced directly after it has been taken, there is a chance for the life of the patient, to whom, after the vomiting has ceased, should be given a teaspoonful of sal-volatile in water every two or three hours until he is sufficiently recovered.

For all the rest of this class of poisons the same kind of treatment is necessary; colchicum and hellebore exhaust by purging, and by depressing the action of the heart, and this latter effect is ascribable to all. The stomach-pump or emetics, castor-oil and laudanum, followed by brandy and sal-volatile, are the remedies to be used. Poisonous mushrooms have been known to remain in the

stomach undigested; therefore vomiting should be produced in this case, although the poison may have been long swallowed.

There are many other vegetable poisons of the narcotic-irritant class, as well as of the other kinds here specified, which might have been included in the above list; but, as allusion to all of them is made under their several heads, it was scarcely necessary to give them here. We have mentioned the principal poisons, and indicated, we trust with sufficient clearness, the general plan of treatment to be pursued.

FRACTURES.

In all fractures, the treatment has the same purpose in view: put the broken parts of the bone together as nearly in their natural relation as possible, and use your ingenuity, by contrivances of splints and bandages, to keep the parts in position. Nature will do the rest, sooner or later, as the health of the general system is better or worse. Keeping the general system in good condition contributes greatly to the cure. Union, but an insufficient one, takes place in a few weeks; but two months is the earliest period at which a bone can be expected to be as firm at the broken place as at any other; and in many cases this union comes much later.

Fracture of the Finger.—After bringing the ends of the bone together by extension, place a small smooth piece of deal, or of gutta-percha, on the under, and another on the upper side, and proceed to bandage somewhat tightly, so as to keep the finger extended; put the arm in a sling, and keep it so for about a month; if the injured part swells and becomes painful, the bandage must be loosened, and a cold lotion applied; this is generally by no means a difficult case to treat.

Fracture of the Metacarpal Bones.—These bones, which intervene between the wrist and the fingers, should be treated in this manner. Place in the palm of the hand a soft but firm spherical body, and, closing the fingers and thumb over it, in a grasping position, keep them so with a bandage; by this means the natural arch is preserved, which it will not be if flat splints are applied; in this case, too, the arm had better be slung, and from a month to five weeks will be the time required to effect a union.

Fracture of the forearm may be either of the *ulna* or of the *radius*, or of both; the former is the inner bone, and the thicker of the two. It may be broken at any part of its length, or at the elbow process, called *olecranon*. In the first case the plan will be to bend the elbow, and bring the hand into such a position that the thumb points upward; use extension until no unevenness can be discovered

in the course of the bone, and then apply two splints, the inner one reaching from the bend of the elbow to the tips of the fingers, and the outer from a little beyond the elbow to the middle of the back of the hand, which should be raised well toward the chest, so as to make a sharp angle, and draw the ulna from the radius. When the fracture is in this latter bone, the same method must be adopted, only that the hand must be depressed instead of raised, in order to keep the two bones apart. When these are both fractured, the setting is, of course, more difficult, and much time has often to be spent in extension and manipulation, before the four broken ends can be brought properly together; the splints should be put on as above directed, bandaging the hand firmly to the longer one, and placing it so that it is neither raised nor depressed, but in a right line with the axis of the arm. When there is fracture of the olecranon there is little or no power of extension in the elbow, behind which a bony lump may be felt; a true osseous union in this case is scarcely to be looked for; but the injury will probably be repaired by a band of ligament. There are commonly inflammation and swelling, which must be reduced before pressure can be applied; the arm should be kept straight, and wet with cold lotion; and a splint applied as soon as it can be borne; let it be a long one, reaching on the inside from the shoulder to the hand; bandage the arm in a straight position, beginning from the top, and making, as you go, extension downward, so as to get the broken bone into its place; it is long ere the limb is in a serviceable condition after a fracture like this. When the coronoid process is broken, the matter is more easily managed; the forearm must be bandaged in a bent position, and kept so. In about a month slight exertion of the limb may be allowed, but there must be great care taken that it is not too violent.

Fracture of the humerus, or upper-arm bone, very commonly takes place in the shaft, on any part of which, within an inch and a half of either extremity, it is easily detected by the mobility of the limb at the seat of the injury, and the patient's incapability of raising the elbow; the broken ends of the bone, too, may readily be felt, and crepitation heard, when they are rubbed together. In this case, two wooden splints will be required, one to go before, and the other behind; or, if the arm is very muscular, four may be necessary to embrace it properly; they should be padded with tow, wadding, or lint, and furnished with tapes, to buckle, or tie, as may be most convenient; the padding should be placed upon a soft piece of calico or linen, a little longer than the splint at each end, and three times as broad; turn in the ends and sides, so that the pad is

a little larger than the splint every way, and about half an inch thick, and make all fast by tacking; place the turned-in ends of the calico next the wood, so that there is a smooth surface presented to the skin. The splints may be placed, and made firm by means of tapes; these should not, at first, be drawn tighter than is required to keep the splints right, and prevent movement of the arm. After the first few days, when the swelling has subsided, a more permanent investment of the limb may be made. First give it a pretty firm roll of bandage, then place two splints, one on each side, of stout pasteboard, gutta-percha, or leather, cut so that they will come down and cover part of the forearm. These splints should have been previously shaped, or moulded, to the sound arm, and should be well fixed by more bandage, which, as it is rolled, should be brushed over with starch to prevent its slipping. Sometimes, where there is not much muscle, the starch-bandage is alone used; but, in this case, the whole of it must be well saturated with strong starch, paste, gum, or white of egg, with strips of brown paper stuck down across the folds here and there. Care must be taken not to move the arm until all this is dry and firmly set. The hand and wrist must be supported with a sling, but the elbow had better hang free, as its weight will tend to keep the bone straight and the muscles extended.

Fracture of the neck of the humerus is that which takes place when the upper extremity, or head, is broken off. The symptoms here are very much like those which attend dislocation of the shoulder, and the treatment must be much the same. Draw down the shaft of the bone, and push up the head by means of a pad in the armpit; then bringing the arm close to the body, with the lower part at right angles with the upper, fix it to the chest by a splint on its outside, and a long bandage encircling it and the whole body.

Fracture of the collar-bone is, perhaps, one of the commonest accidents of the kind that can happen, and one of the most easily detected; it is generally occasioned by a blow on the shoulder, which falls forward, pushing the ends of the broken bone one over the other. The main object in the treatment must therefore be, to keep the shoulder back until the bone has united, and become sufficiently firm to do this without artificial aid.

Make a pad of any soft material—a pair of old stockings, for instance—and put it in the middle of a large handkerchief; then place it well under the arm, on the injured side; the ends of the envelope are brought, back and front, over the opposite shoulder, then crossed, and tied beneath the sound arm; another broad

bandage of some kind is then passed several times round the body and injured arm, so as to bind the latter closely to the former.

Fractures of the Ribs.—These are of not unfrequent occurrence; they commonly result from a fall or a blow, and may be complete or only partial, involving one or more of the bones. The symptoms are, a sharp pain felt at the injured spot, especially in breathing and coughing; irregularity to the touch, and distant crepitation. The chief risk involved is injury to the lungs, from the sharp ends of the bone, and consequent inflammation; hence it is usual to bleed patients after this accident if the system will bear depletion; leeches are sometimes applied to the seat of the pain, and hot bran-bags. A band of stout calico or flannel, from eight to ten inches wide, should be passed round the chest several times, beginning close under the armpits and going down to the end of the ribs; it should be drawn so tightly as to keep the ribs from rising and falling in the act of respiration. The patient should be kept perfectly quiet, and on low diet, for a fortnight at least, assuming the position which is found most easy, which will probably be a half-sitting one, supported by pillows.

Fractures of the Skull.—These are generally attended with injury to the brain, and are always very serious affairs, on account of the concussion which takes place, and the amount of cerebral mischief arising out of this. Domestic treatment can do little here; pending the arrival of the surgeon, the hair should be cut closely off about the seat of the injury, and cold lotions applied. It is not always easy to ascertain whether the skull is really fractured, as a simple crack will be likely to escape notice; but very commonly there is a depression; and sometimes a portion of the bone is driven out of its place, exposing the brain and skull.

Fracture of the nose often takes place, on account of the prominence of the feature, and the thinness of the bones. When any of these are broken, there is nothing to be done, save to elevate them from the inside, by introducing some smooth instrument, such as a probe, or netting-pin. If the broken pieces of bone are kept in their places by means of sticking-plaster, they will quickly unite, and little or no disfigurement may result; the necessary replacement should be effected before inflammation sets in, and cold lotions applied to the part while there is any redness or swelling.

Fractures of the Leg.—In this limb, as well as in the forearm, we have two bones, either or both of which may be broken: the main bone is called the tibia, and the smaller the fibula; the knee-joint is formed by the first alone, but the second takes part in the formation of the ankle-joint. When the fibula alone is broken, the

setting is not a difficult matter, for the tibia acts as a splint to keep it in its place; but it is so well protected by muscles and its position, that this seldom occurs. Should the tibia be fractured, the fibula supports the limb, and prevents any muscular contraction or displacement. The fracture in this case can easily be discovered; there is distinct *crépitus*, and an unnatural prominence, or depression felt, in passing the hand carefully along the shin. The fracture of the fibula is more difficult of detection, especially if it be in the upper part; but this is very rare. When it does occur, it is generally near the lower end, where it may readily be felt, even through the swelling.

The leg must be placed in a box open at the top, the sides of which are properly padded to keep the limb in place, the limb being further supported by a bandage that, beginning at the foot, is put on evenly, fold over fold, up to the knee. With the ends of the bones put in position, this apparatus will be sufficient till union takes place.

Fracture of the Thigh.—This is a very serious accident; the bone may be broken just above the knee, in the shaft, or near the neck. In the first of these cases the nature of the injury is sufficiently obvious, as the broken bone can be felt beneath the skin; this also is the case with the second, in which, as in the third, there is shortening of the limb, and generally turning out of the foot. This accident may be readily distinguished from dislocation of the hip, by the mobility of the hip-joint. There is always much difficulty in keeping the ends of the bone in apposition here, in consequence of the power exerted by the muscles of the thigh, which are constantly pulling lengthways, and causing the ends to overlap, or “ride” upon each other; this is especially the case if the fracture is oblique. It is best to use the long, straight splint first, in either of these cases, and to put it on with a light bandage, gradually tightening it, to accustom the limb to the pressure; the splint must be made reaching from the hip to beyond the toes. When inflammation has subsided, and the pressure can be borne, the case had better be treated in this way: Let the patient lie on a hard mattress, with the leg extended and uncovered; then commence operations by bandaging the leg evenly from the toes to the knee; then place the splint, previously well padded, in its place, and make it fast with rollers to the foot, ankle, and leg, taking care that the former is in the position which it is to occupy—that is, pointing straight upward; next take a silk handkerchief, in the middle of which some wool has been rolled up, to make it of considerable thickness, and pass it between the legs, bringing one end up

behind, and one before; these ends pass through the holes at the top of the long splint, and are tied as tightly as possible, without displacing the fracture. Then, after confining the splint to the waist, with a bandage, insert a short stick between the loop of the handkerchief, and give two or three turns; this will have the effect of shortening the handkerchief, and pulling down the splint, which will carry with it the part of the limb attached to it below, producing the necessary extension; keep on at this, until you find that the injured leg is as long as the sound one; and, when this is the case, lay a short splint along the inside of the thigh, and bandage tightly and smoothly, from the knee up to the hip. The extension must be kept up for about six weeks, at the end of which time the fracture may be sufficiently united to bear the strain of the muscles upon it.

DISLOCATIONS.

Dislocation is the "removal of the articulating portion of a bone from that surface to which it is naturally connected." This removal is generally effected by violence, and the primary object of remedial measures is to bring the point of articulation back to its natural position. When the muscles are only extended, and there is no laceration, or severance of a ligament, and no fracture of either of the bones, there is little difficulty in reducing common dislocations, if taken in hand shortly after their occurrence; but, if the bones are suffered to remain long displaced, so that the muscles become accustomed, as it were, to their new position, there is sure to be permanent distortion, and most likely lameness of some kind. The displaced bone, at its new point of contact with other bones, forms a connection therewith, and finds there a basis for its future movements and operations, it requiring as much force to remove it from thence as it did from its natural position.

The joints most liable to dislocation are the hip, the ankle, the shoulder, the elbow, the lower jaw, the fingers and toes, and in these joints the detection of the dislocation is tolerably easy, even to the unprofessional person.

The symptom of a dislocation having taken place is loss of power in the limb or member, which becomes fixed in one position, any attempt to move it causing extreme agony; there is also a sensation of numbness in the part, and the patient feels sick and faint, probably on account of the severe pain; an examination of the joint also will show a deformity.

Whenever there is a doubt as to the nature of the injury which has happened, it is always best to wait the arrival of a surgeon be-

fore making any violent efforts to reduce what is supposed to be merely a dislocation, but may in reality be that in combination with a fracture, or an injury of quite another kind; but, when the case is tolerably clear, no time should be lost in effecting the reduction; this may be done by drawing down the limb or members until the ends of the dislocated joints are brought as nearly together as possible, then, if the pressure is relaxed, the muscles will generally draw them into their proper position, and hold them there; care should be taken to keep the upper bone of the two which it is desired to connect firmly fixed, so that, in pulling the lower, the downward or outward, as the case may be, does not follow it, and so prevent the necessary extension of the muscles.

Dislocation of the Shoulder.—If the dislocation is in the humerus, or shoulder, a very common part, pass a sheet or strong towel round the body of the patient, and fasten the ends to a staple in the wall, or some other fixed support; then take another towel, and, making what is called a “clove-hitch,” slip it over the elbow, draw it tight, and give the ends to two or three strong assistants, who must pull gently, yet firmly and steadily, for some minutes, while the operator, with his knee beneath the armpit, endeavors, by raising and depressing the bone as it is drawn out, to direct it so that, when it has attained a point of extension beyond the edge of the socket from which it has been displaced, it will slip back into it. A dislocation of the shoulder may be either forward or backward: although the latter is a rare case, it may be known by the swelling at the shoulder-blade, the flatness of the outside, and incapacity of movement; the reduction may be effected in the same way as above described. After it is accomplished, it is most prudent, in either case, to keep the arm confined to the side for some days by means of a bandage, as it may be thrown out again by the slightest attempt to use the limb.

Dislocation of the Collar-Bone.—This may occur at either end, but it is difficult for a non-professional man to detect this, and, if such an injury is suspected, it is best to summon surgical aid, compressing the parts, until it arrives, with a cross bandage. This accident, however skilfully treated, usually results in some permanent deformity.

Dislocations of the Elbow.—These are the most difficult to understand and to reduce of any, on account of the complication of joints at that part, where, it must be remembered, three bones meet, viz., the arm-bone (humerus), and the two bones of the forearm (radius and ulna), the second of which may be dislocated by itself, backward or forward, and the last only backward, carrying the radius with it; two lateral displacements of the bones of the forearm also

sometimes occur; and lastly, and rarely, a displacement in which the cartilaginous surface of the humerus rests between the radius and ulna: it must be evident that a thorough knowledge of the anatomy of the parts is required for the reduction of either of these; therefore we need not enter into a description of the means to be used.

Dislocations of the Wrist-Joint.—These are generally caused by the hand receiving the weight of a heavy fall; it may be of three kinds, all of which may be distinguished from a sprain by the unnatural bony projections, either in the front or back, as the case may be, in contradistinction to the soft swelling only which is set up by the latter. The mode of reduction is this: let the patient's arm be grasped firmly, just above the elbow, by an assistant, while the operator, supporting the forearm with his left hand, takes hold of the patient's hand with his right, and the two, exerting their force in opposite directions, produce the extension necessary to replace the joints in their natural position. After the reduction a roller-bandage should be applied round the wrist, and a splint bound before and behind the forearm, passing on either side down as far as the metacarpal bones.

Dislocations of the Fingers and Toes.—These are of rare occurrence, and, when they do happen, it is generally between the first and second joints; they may be easily known by the projection of the dislocated bones, and reduced without much difficulty, if done soon after the accident. They must be reduced by extension; the clove-hitch, made with a piece of stout tape, may be used if there is much difficulty; the wrist during the operation should have a slight forward inclination given to it; this will relax the flexor muscles.

Dislocation of the Jaw.—A blow upon the chin, when the mouth is opened widely, will sometimes cause this, as will yawning or gaping very deeply; by it the patient is placed in a very awkward position, with his mouth set wide open, and with no power to close it or to articulate words. This kind of dislocation may be either complete or partial; in the latter case the mouth is not opened so widely as in the former, and it may be known by the chin being thrown on one side, opposite to that of the displacement. There is not usually much difficulty in reducing a dislocation of the lower jaw; the upper cannot be dislocated. The plan is to wrap a handkerchief round each thumb, and, placing them in the inner angles of the jaw, the coronoid processes, as they are termed, endeavor, by forcing it backward and downward, to restore it to its proper position. Success will generally attend the effort, if only a moderate degree of force be used, especially if it be by a

skilful hand. Some put a transverse piece of wood into the patient's mouth to serve the purpose of a lever, but this is a rough method of operating, and no person skilful in manipulation need resort to it.

Dislocation of the Hip-Joint.—This is one of the most frequent causes of lameness; it may be caused by a fall, or coming down heavily on the feet from a leap, and frequently occurs to children through the negligence of servants. A careful mother will take note of the slightest alteration of the gait of her child, and institute an examination at once, for sometimes the displacement of the hip-joint in the young is attended with little or no pain, and the limping gait is its only obvious indication, unless it be a manifest disinclination to walk at all; if it be a child in arms to whom the accident has occurred through the carelessness of its nurse, the injury may remain undiscovered until the displaced joint has become too firmly fixed in its unnatural position ever to be restored to its natural one, and a shortened limb, producing lameness for life, is the consequence. By a very slight examination of the part, however, a dislocation of this kind may be detected; there is a very considerable projection of the bone backward, the thigh is drawn back, and the knee inclines inward, and is raised above its fellow-knee, so that the foot is raised from the ground; the whole limb, too, is for a while immovably fixed. Of the dislocation of this joint, there are four distinct forms, which we need not pause to describe: in each of them the reduction must be effected in the same way. Place the patient on a bed, with a strong towel, or sheet, passed between his legs and brought up round the hip; let the ends of this be fastened to some firm support, such as a stout stick passed across a doorway; then fix another towel to the thigh by means of a clove-hitch, and let three or four strong men take hold of the ends and keep up a steady strain for a quarter of an hour, or more if it be necessary; the muscular power of the patient, if it be an adult, should have been previously weakened by bleeding, or tartar-emetic given in half-grain doses every ten minutes until nausea is produced; this should be done in all cases of difficult reduction. The administration of chloroform will have much the same effect, and will likewise produce insensibility to pain. Sometimes, in such cases as these, a strap, with a pulley fixed to the wall, is used to effect the extension; most hospitals are furnished with this apparatus, and employ it constantly.

As dislocation of the hip-joint is, sometimes confounded with fracture of the neck of the bone within the capsular ligament, and as great mischief might result from applying extension in such a case, it will be as well to observe that, in fracture, the knee and foot are turned outward—in dislocation, inward.

Dislocation of the Patella.—This is frequently produced by a person falling with the knee turned inward, and the foot outward; it may be in either of three directions—outward, inward, or upward. The method of reduction is to place the patient on a bed, and, raising his leg by lifting it at the heel, press on the edge of the dislocated bone, which is farthest from the articulation, until the inner edge is raised over the *crudella* of the former, and is thence drawn into its place by the action of the muscles. Evaporating lotions should then be applied until the inflammation is subdued, when the part may be bandaged. When the dislocation is upward, the ligament of the patella is torn through, and in consequence there is generally a great deal of inflammation. Leeches are usually required, and cold lotions for six or seven days, after which the leg must be kept suspended by a splint and rollers until a union of the ruptured ligament is effected.

Dislocation of the Ankle-Joint.—This may be either inward, outward, or forward; in the first case it may be the result of a jump from a considerable height, or sudden check of the foot when running, the body by the impetus being carried forward. In the second, the foot is probably twisted in running or leaping; or, it may be that the passing of the wheel of a carriage over the leg causes the injury. Jumping from a carriage in rapid motion, or falling backward with the foot confined, will probably cause the third form of displacement. Only a surgeon can detect the difference in these forms of knee-dislocation, and adopt the measures proper for their reduction; there is great likelihood that they will occur again, having once happened, therefore it is best to keep the ankle bandaged or supported by means of an elastic stocking.

DISEASES OF THE EYE AND EAR.

OPHTHALMIA.

1. *Mild or Catarrhal Inflammation*.—The symptoms are redness of the surface of the eye, from fulness of the vessels of the outer coat, commonly called “bloodshot eye;” pain and smarting, as if from particles of dust or sand in the eye; swelling of the membrane on the surface of the eye, and inside of the lids. This form sometimes terminates by the formation of vesicles on the eye.

2. *Severe Inflammation (purulent ophthalmia)*.—The above symptoms are much aggravated, and attended with a profuse discharge of pus or matter from the surface of the eyes. Of this there are two forms—one belonging to infants, the other to adults.

3. *Scrofulous Inflammation*.—In addition to the above symptoms, there is intense intolerance of light; the patients (generally children) hide their faces and keep their eyes shut, to avoid the pain that light causes. There is generally a profuse flow of tears. This form is very prone to cause ulceration of the cornea (the transparent membrane on the front of the eye), by which opaque spots are left and sight is impaired.

4. *Rheumatic Inflammation*.—The eye is less bloodshot, but the pain is greater in the ball of the eye itself, and the bones around the eye; there is intolerance of light, and the symptoms are more distinctly remittent.

5. *Inflammation of the Cornea*.—(The transparent membrane at the front of the eye, through which the light passes, is the cornea.) The cornea loses its transparency. Specks form on its surface; a pink ring of inflammation forms around its edge; at last the specks are

seen to have become small ulcers, which, sometimes perforating the membrane, let out the fluid from behind its inner surface.

6. *Inflammation of the Iris or Membrane which surrounds the Pupil.*—This part loses its ordinary aspect, and becomes dull; its freedom of movement is impaired; its border becomes irregular; the sight is dim; there are pain, and other signs of inflammation, as mentioned above.

7. *Inflammation of the Internal Parts and whole Globe of the Eye.*—Severe pain, deeply seated; sense of distention of the globe of the eye; loss of sight; swelling of the eye; high fever.

TREATMENT.—It is not safe to venture far in domestic treatment of disorders of the eye. A few general rules may be laid down, and, if the disease yields to the steps taken under these, as the simple forms nearly always will, it is very well. Otherwise consult, at any expense, the best oculist within reach. Warm bathing of the eye, combined with mercurial treatment, should first be tried in all the forms of ophthalmia; if the habit of the patient is such as to bear this, five grains of blue-pill at night, and a saline or black draught in the morning, continued for three successive days, or alternate days, may be given; if not, the mercury must be taken in a milder form, as in the gray powder, and combined with rhubarb, say three grains of the former, and eight or ten of the latter, every other night; the diet should be low, and light excluded as much as possible from the inflamed organ. Should the warm bathing not produce a good effect, in a couple of days or so, use the following lotion:

Tincture of opium,	1 drachm.
Sulphate of zinc,	8 grains.
Acetate of lead,	16 grains.
Rose or plain distilled water,	8 ounces.

Dip a piece of linen in this lotion, and bind it not too tightly over the eye, letting part of the fold hang down so as to cover it well; keep this moistened. Should it be necessary to resort to other measures, drop into the eye, from a quill, or small glass tube, a solution of nitrate of silver, the strength about four grains to the ounce of distilled water, two or three drops three times a day, and apply leeches. When this disease continues long, the inflammation extends deeper, and it becomes *chronic*, in which case it has all the symptoms of the *acute* form of disease, except the feeling as of dust in the eyes; the latter of the above measures will generally reduce it, or, should not the nitrate-of-silver drops succeed, use wine of opium alone in the same way, and a lotion made with green tea, and about one-sixth of its bulk of brandy, or other strong spirit. If, in spite

of these remedies, the veins of the lids begin to swell on the outside, showing that the inflammation is spreading, blisters should be applied behind the ears, and the system yet more reduced if this appear safe. In this case there is a plan of treatment, which generally succeeds in giving relief, and it is really not so dangerous and formidable as it may seem. Let the lid of the affected eye be carefully closed, damp the outside with a sponge, then draw a stick of lunar caustic (nitrate of silver) gently and evenly across the moist surface in successive lines, taking care not to go over one part twice; suffer the application to dry without opening the lid, which in a few hours will begin to swell, and soon attain such a size as to cause total blindness; this may continue perhaps for a day or two, the cauterized surface during the time discharging a large quantity of serum; the swelling will then gradually subside, and in a few days more, with the help of a dressing of simple ointment, the skin will have resumed its ordinary appearance, and all symptoms of inflammation will probably be gone. Gold-diggers and persons in similar circumstances, with whom ophthalmia is not uncommon, and who cannot command professional aid, will find this an effectual and easily-applied remedy.

Purulent ophthalmia is rarely seen, except in new-born infants, in whom it is a result of inoculation from the maternal passages. Keep the eyes clean, and wash them with rose-water, in which are dissolved three grains sulphate of zinc to the ounce. If the inflammation is very active, a leech may be necessary to save the eye.

Local applications will do little or nothing for the cure of scrofulous ophthalmia; the treatment must be general and generous; the *cause* is usually obstructed or unhealthy secretions, and, if these are rectified, the effect will soon disappear. Attention must be first paid to the state of the *liver* and *kidneys*; if these are deficient in action—if there is any thing wrong with the *bile* or the *urine*—administer the appropriate remedies. After this, administer tonics in combination with sedatives, say quinine, and digitalis; or, if this affects the action of the heart too much, conium; they may be given in the form of pills, one grain of the first and one-third of a grain of the second or third, three times a day. With some constitutions, the iodide of potassium acts best; therefore, if the above does not succeed, take:

Iodide of potassium,	. . . . .	2 scruples.
Compound essence of sarsaparilla,	. . . . .	4 drachms.
Tincture of digitalis, or conium,	. . . . .	1 drachm.
Cinnamon or mint water,	. . . . .	8 ounces.

Take a tablespoonful twice a day.

It is sometimes advisable to add to this, sweet spirits of nitre, about a drachm. In obstinate cases, the pustules may be touched with nitrate of silver, but this should be done by a physician.

Rheumatic inflammation of the eye will disappear under the treatment for acute rheumatism.

For inflammation of the iris, give hydrargyrum iodidum viride, in pills of half a grain each, three times a day.

Ulceration of the cornea, in its more dangerous form, is caused by extensive inflammation of the cornea itself; in its less dangerous form, by the little pustules associated with scrofulous ophthalmia. In the latter case, the treatment should be like that of strumous ophthalmia; in the former it cannot be too active and energetic, as there is little chance of saving the eye by other than the strongest methods: calomel and opium, blisters, leeches, and the free use of the lancet, will no doubt be employed by the medical man, and no other can detect the niceties of the case sufficiently well to treat it properly.

BLINDNESS (*Amaurosis, Gutta Serena*).

In ascertaining the symptoms it is necessary that each eye be examined separately, and that while one is being examined the other should be carefully excluded from the light. The pupil is dilated, giving a staring look; the eyeball either oscillates or has unusual fixity and prominence. The action of the pupil, when tried by a light brought to bear upon it, is sluggish or unequal, so it will have an irregular form. The irregularity in the shape of the pupil is most frequently seen toward the inner and upper side of the eye.

Impairment of Vision.—The impairment of vision commences with black specks before the sight, flashes of light, pain in the forehead and eyebrows. The failure of sight may, for some time, be partial, so that only portions of objects are seen. It may, at first, only be noticed at certain times of the day, or in the evening. These varieties are known as night-blindness or day-blindness. As the disease progresses, the impairment of vision becomes constant, and total blindness ensues.

The *distinguishing* symptoms are those that separate amaurosis from cataract, and other diseases of the fluids of the eye.

In cataract the dimness of vision is slower in its course, and has more the character of a mist or veil, than has that of amaurosis; at the same time that in cataract an opacity is more or less plainly perceptible, filling the space of the pupil.

In amaurosis depending upon insensibility of the retina, the patient sees best at noonday; the reverse takes place in cataract, which consists of opaqueness of the structures placed before the retina.

The causes of this are, disease, or disorder of the brain, optic nerve, or retina. These may be permanent, depending upon change in the structure of the parts, or they may be connected with a merely temporary morbid condition, e. g., congestion, or poisonous substances circulating in the blood. Blows, or other injuries of the globe of the eye, protracted over-use of the organ with a strong light upon minute objects, or during the hours that should be given to sleep, are among the *exciting* causes.

TREATMENT.—Attention to those conditions which may have given rise to it. If believed to be of a temporary character, active purgatives must be given, combined with mustard cataplasms to the nape of the neck, hot mustard-baths to the feet and legs, etc. Where the affection comes on suddenly, if medical advice cannot be speedily obtained, these means should be employed without loss of time, pending the arrival of the medical attendant.

CATARACT.

A disease of the eyes, producing opacity of the crystalline lens, which prevents the passage of the rays of light, and so causing blindness. The real *cause* of this disease is not well understood: it may proceed from external violence; but more commonly it has some internal and occult origin; it is of slow growth, and can only be operated on at a certain stage, when the opaque body in the pupil has assumed a sufficient density.

The *symptoms* of its formation are, a dimness and mistiness of vision, which may generally be noticed before any opacity can be perceived on the lens itself; then there are optical illusions, like specks or motes floating before the eye; these are succeeded by the gradual falling, as it were, of a curtain upon the outward view, which is finally obscured altogether. Sometimes the progress of the disease is slow and gradual, but frequently it is rapid, especially in the latter stages; persons who have passed the middle age are most likely to be affected by it, and sometimes it has made considerable progress in one eye before the patient is made aware of it by some accidental circumstance, which for a time prevents the use of the other.

The proper *treatment* is depletion, where it can be borne; cupping in the neck, blisters, or a seton; repeated doses of calomel, with purgatives; poultices of fresh hemlock-leaves constantly applied to the eye, or the extract of hemlock smeared around it, or a solution of the same dropped in. All remedies, however, generally fail, and an operation is necessary to save the sight. This is generally successful for a time, but very often the disease renews the attack after

a while. A cataract may be either *firm* or *hard*, *milky* or *fluid*, *caseous* or *soft*. In the first case the opaque lens retains a tolerable degree of firmness; in the second the substance is converted into a whitish kind of fluid; and, in the third, it has a jelly or curd like consistence.

Cataract is distinguished from *gutta serena* by the presence of sensibility to light, and the obvious opacity in the crystalline lens, neither of which is a symptom of the latter disease.

GLASSES.

Common low-priced spectacles, made as it were by chance, and from all sorts of defective materials, even sometimes from the commonest window-glass, are not only useless to the wearer, but actually increase the evil they are intended to remedy. In these spectacles, the assortment of the lenses is irregular, one of the glasses having generally a different focus from the other; they are, besides, badly polished, by which their transparency is affected; they are almost always of different thickness; they are often full of specks and imperfections, which, being partially ground down, are not readily detected by the eye; and finally, the convexity of the two glasses is seldom equal, the sides not only differing, but different degrees of convexity even existing on the same side of each lens.

The cheapness of these glasses, unfortunately, is a bait to many—but the saving of a few cents ought not, in any instance, to be put in competition with the preservation of one of the most important of our senses. Many persons with defective vision, with proper glasses, have for the space of ten, nay, even twenty years, preserved the same degree and extent of sight they first obtained from their use—an advantage which they could not have enjoyed had they adopted the badly-manufactured glasses to which we have alluded.

Spectacles, the lenses of which have different degrees of convexity or concavity, can never represent objects correctly, or of their natural form and colors, but cause them to appear distorted, and tinged with refracted rays of light along their outlines. This produces in the eye a kind of attraction, or drawing forward; the oblique muscles of the eye being obliged to lengthen themselves in order to see an object distinctly.

The inequality of their focal distances produces, also, strange confusion: a common glass will sometimes have a focal distance of twelve inches at the centre, and only ten at the circumference; besides which, this will often be found associated with another glass, whose central focus is but ten inches, and that of the circumfer-

ence perhaps fourteen. From this it is easy to imagine what injury must be done to weak eyes, but whose powers are equal, when thus obliged to change the diameter of the pupil, and to admit a greater or less amount of light at every instant.

DEAFNESS.

Deafness may proceed from any injury inflicted on the delicate organs of the ear by loud noises, violent colds, inflammation or ulceration of the membrane of the auditory passages; hard wax, or other substances interrupting the transmission of sounds; either overdryness or excessive moisture in the parts; want of tone in the general system from debility; among one of its frequent causes is some defect in the structure of the organ itself, which no medical treatment can obviate; in this case there is generally dumbness as well.

The *treatment* will depend to a considerable extent on the cause. If there is an accumulation of hardened wax, or any defective or diseased action in the glands secreting that substance, a few drops of a saturated solution of common salt, or of ox-gall and balsam of tolu, one part of the former to three of the latter, may be dropped into the ear, while the head is held on one side, night and morning; or applied on a piece of wadding inserted by means of a probe. Before each application, the ear should be syringed out with warm milk-and-water, or soap and water. If there is a thin acrid discharge accompanying the deafness, apply a blister behind the ear, and keep it open for some time with savine ointment. When deafness proceeds from cold in the head, diaphoretics, the warm foot-bath, and flannel wrappers, must be the remedies; if from debility and consequent loss of tone, drop stimulants into the ear, electrify or galvanize, and give tonics; this will be the treatment also, if it proceeds from defective energy of the optic nerve.

Sulphuric ether has been declared to be very efficacious in the cure of deafness. From four to eight drops are to be daily dropped into each ear of children, and double the quantity into the ears of adults.

Glycerine has been very strongly recommended for that particular kind of deafness arising from a thickening of the passage (*meatus*) down to the tympanum, or drum of the ear. In this case there is a greater or less degree of deafness, corresponding with the amount of thickening; cessation of the secretion of wax; and frequently singing or hissing in the ears. In applying the *glycerine*, the *meatus* or external opening of the ear is to be well cleansed with

tepid water by means of cotton used with the forceps. The *glycerine* is then poured into the ear, and a plug of gutta-percha, softened in boiling water, made to fit the external opening; this takes the exact form of the ear, becomes hard, and effectually prevents either the entrance of atmospheric air or the exit of the glycerine. The ear should be examined daily, and the same process repeated. The lining membrane can be examined with a blunt silver probe, passed gently through the speculum auris, to ascertain the effect of the glycerine upon the articular thickening. The *meatus*, or opening, will gradually lose its shining, pearly appearance, and softened pieces will fall off, and can be removed either by the forceps, or gently syringing. Never attempt to tear them away, but allow them to come away by the means just stated. The treatment occupies ordinarily from two to four weeks, and is generally without pain or inconvenience of any kind to the patient.

Ear-diseases are not so easily determined as those of many other organs, on account of their greater concealment. Delicate and scrofulous children are especially liable to a yellow discharge, which suddenly comes on, and is at first often stained with blood, and accompanied by feverishness and great pain in the parts; there are generally redness and swelling of the passages of the meatus, and inflammation of the surrounding skin. This may arise from an inflamed state of the membrane which lines the passages, or from an abscess formed beneath it, or between the cells of the bones of the mastoid process. The discharge may be caused by some foreign substance thrust into the ear, such as a bead, pea, or piece of slate-pencil; in this case great care must be exercised in attempting to remove the foreign body. Very commonly this fills the whole cavity, so that it is difficult to insert any instrument between, and the danger is that it may be pushed so far in as to press upon the tympanum, causing inflammation and acute pain; sometimes the efforts to effect the removal result in the displacement and bringing away some of the small bones; while the object whose removal is attempted is probably pushed into a position from whence only an operation will extract it. A pair of fine forceps in the hands of a skilful surgeon will probably effect the desired object, or it may be done by a careful mother or nurse by means of an ear-pick; but it is best for such to have recourse to a syringe and warm water, taking care to throw the water in gently, and leave plenty of room for its return through the orifice of the ear. If these efforts are unsuccessful, it is best to let the foreign body remain for a day or two, it will most likely cause an enlargement of the orifice, and become coated with wax, which will render it less irritating to the membrane, and also

facilitate its removal; from time to time the syringing should be continued, and this will no doubt eventually effect the removal. A piece of slate-pencil is one of the most frequent as well as dangerous substances which can be introduced into the ear, as, on account of its angular form, it is very difficult of extraction, and likely to cause irritation; a pin or a needle is also bad, the latter especially, as it is likely to make its way into the intricate parts, and cause serious temporary if not permanent mischief; either of these, however, if its insertion be known of in time, can generally be taken out by means of forceps.

For the purulent discharge from the ear, which is induced by this or any other cause, a lotion, made with two drachms of solution of chlorinated soda to six ounces of rose or elder-flower water, should be injected, but not with any force; the best method is to let it flow into the ear, held so as to receive it fairly, from a small sponge saturated with the lotion.

As children sometimes fancy things have got into the ear when they really have not, it is best to institute an examination before attempting their removal; this may be done by drawing the upper lobe of the ear upward and backward, which will have the effect of straightening the curved passage so that the eye can discern the drum at the bottom, unless there is an interposing object.

Counter-irritation will sometimes have a good effect on purulent discharges from scrofula or other causes; a small blister behind the ear is the best application, but it should not be kept open for any length of time, or it will weaken the system too much. When the discharge is the result of active inflammation, and is attended by febrile symptoms, a spare diet and aperients must be the treatment; but weakly, scrofulous systems require a generous diet and tonic medicines.

Earache may proceed from abscess in one or more of the passages, or it may be altogether neuralgic. In children it is not uncommon during the period of dentition, and is especially severe in cutting the permanent teeth; grown persons sometimes suffer from it when producing their wisdom teeth; it is often brought on by exposure to cold or draughts; there is not often much constitutional derangement, although the pain is sometimes excruciating, unless it is long continued.

TREATMENT.—In children, during dentition, lancing the swollen gums will often afford relief, especially if an aperient be given, such as rhubarb and magnesia combined with a little ginger, as in Gregory's powder; elder children may have a little laudanum dropped into the ear, and take compound senna mixture, repeated

until the bowels are freely opened; should these remedies not prove effectual, a fomentation of chamomiles and poppies should be applied, and a warm poultice afterward; the heart of a roasted onion applied warm to the external orifice will sometimes afford relief. If the case is very obstinate, two or three leeches behind the ear, followed by a blister, may be tried, with an anodyne saline aperient something like this:

Acetate of morphine,	. . . . .	$\frac{1}{2}$ grain.
Solution of acetate of ammonia,	. . . . .	3 ounces.
Sulphate of magnesia,	. . . . .	1 ounce.
Water or camphor mixture,	. . . . .	5 ounces.

Mix, and take two tablespoonfuls every four hours.

When earache is caused by an abscess, and is attended with much swelling and severe pain, hot fomentations and poultices will be the treatment, syringing the external passage with warm water, and, after the abscess has discharged, with a solution of sulphate of zinc, in the proportion of eight grains to the ounce of plain or rose water, attention being paid to the bowels. With some persons any derangement of the general health will cause the formation of these abscesses, and in such cases the treatment must be rather general than local. Earache, no doubt, often proceeds from derangement of the digestive organs, and may be relieved by active purgatives and emetics. When it is strictly neuralgic, quinine, or some preparation of iron, will be the most appropriate remedy, with stimulating liniments rubbed in behind and about the ear.

MIDWIFERY.

MENSTRUATION.

THIS is a function of the uterus, by which the monthly discharges take place. These generally commence between the fourteenth and sixteenth years of age, although they may begin as early as eleven or twelve. A considerable period may elapse between the appearance of the first and second menstrual discharge; but, when they are properly established, their recurrence at regular periods may be calculated on with great certainty, unless some functional or other derangement of the system interferes with them. Ordinarily a lunar month of twenty-eight days is the intervening period, but with some females the discharge occurs every third week; the fluid discharged is partly blood, which, owing to mixture with other fluids, does not coagulate; the quantity is from three to five ounces, and the process occupies from three to five days. The quantity, however, and duration of the emission vary greatly in different females, and, unless the former is either very scanty or excessive, these do not appear important particulars; but the regular recurrence of the issue is important to health; this should be borne in mind, and due care taken not to suppress the discharge by exposure to cold or wet, or by violent exertion of any kind about the time when it may be expected. It is desirable that young females should be properly informed by their mothers, or those under whose care they are placed, of what may be expected at a certain age, or they may be alarmed at the first appearance of the menses, taking it to be some indication of a dangerous disease or injury, and, perhaps, by mental agitation or a resort to strong medicines, do mischief to themselves. If the menses do not appear at the usual age, or for some years after, no alarm need be felt, provided there is no constitutional derangement which can be attributed to this cause. Some women never menstruate, although they may be married and have a family.

The disorders of this function are : suppression of the menses ; dysmenorrhœa, or painful menstruation ; and menorrhagia, or profuse menstruation.

SUPPRESSION OF THE MENSES.

Sudden suppression of the menses may arise from exposure to cold or wet, from extreme mental distress, and several other causes ; it is generally accompanied by violent headache, severe pain in the loins and abdomen, difficulty of breathing, and shivering. In this case the patient must take warm diluent drinks, saline aperients, till the bowels are freely opened, have hot bran poultices applied to the lower part of the abdomen, immerse the feet and legs in hot water, rendered stimulant by the addition of mustard ; if the pain is extreme, take an opiate draught every four hours, and have a lavement, with one drachm of turpentine and half a drachm of tincture of opium thrown up ; she must also be kept as quiet as possible.

Chronic suppression may result from the acute, or from defective nutrition of the organs ; from the early termination of menstrual functions, or from the weakness occasioned by a profuse discharge of "whites." In this case we generally have pains in the head, sides, and back, loss of appetite, giddiness, sallow complexion, with a dark line around the eyes, generally torpid bowels, with other dyspeptic symptoms. It is sometimes difficult to distinguish between this and the early stage of pregnancy ; in both we have a large abdomen, but in the latter usually the breasts are flat, in the former full and plump, but the doubt will not long remain ; the morning sickness, the increasing size of the abdomen, and the other unmistakable signs of pregnancy, will appear in the one case, or not in the other, and thus give an easy means of distinction.

In this case, the warm hip-bath should be used about the proper period of menstruation, and it would be well to give some uterine stimulant, such as ergot of rye, of which about five grains, with two grains of aloes, and a drop of essential oil of juniper, made into two pills, or mixed up in a powder, would be about the dose to be taken each night at bedtime, with a draught of pennyroyal-water ; or a mixture composed of spirits of turpentine, made into an emulsion with yolk of egg, sugar, and essence of juniper, about six drachms of the first and one of the last, in a six-ounce mixture ; one ounce to be taken three times a day. These means of promoting the discharge in any case must not be prolonged much beyond the menstrual periods, between which all possible means must be taken to strengthen the system ; good diet, plenty of active exercise, the use of the shower-bath, or cold or tepid sponging ; steel mixture, with

aloes and iodine, in one or other of its forms; these are the proper remedies.

Painful menstruation is the rule with some females, but the exception with most; it does not seem to be in any way connected with the quantity of the discharge, and it may attend both the secretion and the emission; or but one or other of the processes, and but partially, coming on in paroxysms, or continually, during the whole process; the matter discharged is often thick and membranous, and sometimes has in it clots and streaks of blood: the cause of this is not very clear; it has been observed to occur after strong mental emotions, a cold caught during the menstrual period, a fright or other shock to the system, and would seem to indicate an irritable state of the womb. In this case we must resort to warm hip-baths and friction, fomentation of the parts, diluent drinks, saline aperients, opiates, and a spare diet.

As a local means, perhaps the most useful palliative is the application of warmth to the region of the womb, and over the whole surface of the abdomen, by means of hot water. Warmth may also be applied at the same time to the feet. And the injection of warm water into the womb is sometimes useful.

From twenty to sixty drops of the ammoniated tincture of guaiacum should be given twice a day.

PROFUSE MENSTRUATION (*Menorrhagia*).

The periods return at short intervals, and the discharge is too profuse, and lasts too long. The usual duration of the period is four or five days; the quantity of blood lost is, on an average, about five ounces. Much more than this is excessive. The blood is sometimes discharged in gushes, and mixed with clots, so that if it occur in married women it is not always easy to distinguish it from early miscarriage. In the intervals a discharge of whites is constant. The patient becomes debilitated and pale, suffering from headache, faintness, feebleness of pulse, palpitation, ringing in the ears, disorders of the stomach and bowels, nervous affections, swelling of the feet and legs; pain, and sense of weight or bearing down in the region of the womb.

The causes are: Hæmorrhagic tendency; the period of the cessation of menstruation; debilitated constitution; irritating violent purgatives; unusual bodily exertions; mental or moral excitement; indolent and luxurious habits of life.

TREATMENT.—Absolute rest; lying on a mattress or cool couch; taking all food and beverages cold; application of cloths dipped in

cold water to the lower part of the body; saline aperients, with mineral acids. If these do not suffice to moderate the discharge, acetate of lead or sulphate of zinc should be given, or a mixture of the sulphate of quinine, as follows:

Sulphate of quinine,	. . . . .	16 grains.
Water,	. . . . .	2 ounces.
Sulphuric acid,	. . . . .	$\frac{1}{2}$ drachm.

Take a teaspoonful once in four hours.

Or give once an hour, for two or three successive hours, ten drops of the tincture of digitalis.

In the intervals, steel and other tonics and aperients, together with a liberal diet, should be taken.

LEUCORRHŒA, OR WHITES.

Usually this troublesome affection is associated with general debility, especially if it has continued profuse for any length of time; hence it is very desirable that attention should be paid to it at the commencement; for, if neglected, it may seriously impair the constitution, and grow from a comparatively mild affection into an inveterate habit of the system.

The causes of this discharge are over-exertion of the uterine organs, irritation of the rectum from loaded and constipated bowels; it may also be brought on by diarrhœa, piles, worms, irritation of the bladder, or of the nervous system; weakness, too, is a cause, as well as a consequence, of its long continuance; confinement in a warm atmosphere, and luxurious living, must likewise be numbered among its exciting causes.

We can generally distinguish this disease from gonorrhœa, by the absence of local irritation and swelling of the external parts, and the glands of the groin; also by the discharge being less regular and copious.

In leucorrhœa, the discharge is commonly at first white and pellucid; or it may be opaque and thick, coming away now and then in lumps; after a while the color will perhaps change to green, yellow, or brown, and sometimes it will become very acrid, causing abrasion and smarting on passing the urine. In this stage it is apt, especially during pregnancy, to cause a gleet discharge from the urethra of one having sexual intercourse with the patient. Ere long, if the disease is not checked, we get great local irritation, and constitutional disturbances; there will probably be costive bowels, pains in the loins and back, great lassitude, with nervous and hys-

terical affections. Menstruation, too, will be irregular, at one time being altogether suspended, and at another too abundant.

TREATMENT.—Women, who are likely to have leucorrhœa, should avoid all predisposing causes of the disease; such are wines and other stimulants, and hot tea or similar drinks taken in large quantities; luxurious living and sensual indulgences of all kinds, especially much sexual intercourse, and any thing which has a tendency to enervate and enfeeble the frame. Early rising and regular open-air exercise are essential.

The cold hip-bath should be used twice or thrice a week. Some very delicate women will find the most advantage from the tepid bath at about 86°. Lime-water should be taken as common drink, or in the quantity of a pint a day, in divided doses; and a blister may be applied to the sacrum, or broad bone at the bottom of the spine, and occasionally repeated. Whatever the general plan of treatment may be, the lime-water and blisters are almost always applicable, and more or less serviceable. So, also, is the common use of some bitter tonic, as the tincture of gentian, cinchona, or calumba.

Generally speaking, the principal object to be aimed at is to give firmness to the general habit, and strength to the weakened and relaxed membranes of the womb and its passage, by the employment of vegetable and metallic tonics, or stimulants, vegetable alteratives, cold bathing, astringent injections, pure air, and sufficient exercise, aided by a mild but nutritious diet.

Costiveness must be prevented, by the regular use of a mild aperient, as rhubarb. Indigestion and irregular menstruation must be equally guarded against.

In obstinate cases, there should be an injection into the vagina of a solution of alum and sulphate of zinc, three drachms of the former, and one drachm of the latter, to a pint of water; three or four ounces to be thrown up, while the patient lies with the hips rather elevated; this position to be retained for some time, with the parts covered by a napkin or sponge, so that the fluid may be kept in. If there are itching and irritation of the parts, they may be allayed by an injection composed of carbonate of soda, two drachms, in a quart of bran-tea or poppy-decoction. If the simple alum-and-zinc injection proves ineffectual, add a drachm of powdered catechu to each pint, or use decoction of oak-bark as a vehicle for the above salts.

An effective injection, when the discharge is offensive, is the proportion of one drachm to one ounce of water.

Balsam of copaiba is directly curative of the disease in many cases. Although it is a revolting measure to most persons, there is

an astonishingly curative effect in injecting into the vagina, immediately it is voided, the person's own urine, passed while she is taking copaiba.

CHLOROSIS, OR GREEN SICKNESS.

This occurs in young girls suffering from some irregularity or disorder of the menstrual function. It is characterized by a pale, blanched complexion, languor, listlessness, and depraved appetite and digestion; the several secretions being faulty or inert, especially at the commencement. The languor extends over the whole system, and affects the mind as well as the body; and hence, while the appetite is feeble and capricious, and shows a desire for the most unaccountable and innutrient substances, as lime, chalk, etc., the mind is capricious and variable, often pleased with trifles, and incapable of fixing on any serious pursuit. The heat of the system is diffused irregularly, and is almost always below the point of health; there is, consequently, great general inactivity, and particularly in the small vessels and extreme parts of the body. In advanced cases, the pulse is quick and low, the breathing attended with labor, the sleep disturbed, the face pale, the feet cold and swollen, the nostrils dry, the bowels irregularly confined, and the urine colorless.

TREATMENT.—The great object of treatment is, to get the system into a state of good general health, and to improve the quality of the blood, by the use of tonics, alteratives, and aperients; in conjunction with horse-exercise, change of air and scene, a moderate but very nutritious diet, and cheerful society. Let the following be taken :

Sulphate of iron,	20 grains.
Socotrine aloes,	3 grains.
Ipecacuanha, in powder,	3 grains.
Aromatic powder,	6 grains.
Extract of gentian,	2 scruples.

Mix, and, with a little syrup, make the whole into a mass, to be divided into twenty pills. Two to be taken three times a day, after every meal.

The sulphate of iron may be increased each time the pills are prepared, until the above quantity is doubled.

Or give pills of the carbonate of iron, made in Valet's mass, from twenty to thirty grains a day.

PREGNANCY.

THE period from the time of conception to that of delivery should be forty weeks, or 280 days. It is commonly set down as nine calendar months, but this would make only 275 days; or, if February be included, 272 or 273 days, that is, 39 weeks only instead of 40, or nine calendar months and a week. In making the necessary provision for the coming on of labor, it is best to calculate from midway between the last occurrence of menstruation and the one which would have followed, if conception had not taken place, and allow nine calendar months from that time.

The following table will be found useful in counting the probable time of delivery:

NINE CALENDAR MONTHS.			TEN LUNAR MONTHS.	
From	To	Days	To	Days
January 1	September 30	273	October 7	280
February 1	October 31	273	November 7	280
March 1	November 30	275	December 5	280
April 1	December 31	275	January 5	280
May 1	January 31	276	February 4	280
June 1	February 28	273	March 7	280
July 1	March 31	274	April 6	280
August 1	April 30	273	May 7	280
September 1	May 31	273	June 7	280
October 1	June 30	273	July 7	280
November 1	July 31	273	August 7	280
December 1	August 31	274	September 6	280

This table may be thus illustrated: A woman has ceased to menstruate on the 1st of July; her confinement may be expected at soonest about the 31st of March (the end of nine calendar months), or at latest about the 6th of April (the end of ten lunar months). Another has ceased to menstruate on the 20th of January; her confinement may be expected twenty days after the 30th of September (the end of nine calendar months) at soonest, or twenty days after the 7th of October (the end of ten lunar months) at latest.

The chief signs of pregnancy are: 1. The cessation of the menses; although this is by no means an unfailing sign, for sometimes this discharge will cease from other causes, and sometimes it will continue after conception has taken place. 2. Morning sickness, which generally commences about the fourth or fifth week, and lasts to about the fourth month; with some this is but slight, and causes but little inconvenience; but with others it is more continuous and serious, sometimes causing the rejection of nearly all food for a very considerable period. This symptom, again, cannot be taken as a proof of pregnancy; it is merely a suspicious circumstance, to be watched in connection with others. 3. Enlargement of the breasts, which generally increase in size about two months after conception; they also become tender and sore, they throb and burn, and, when pressed by the hand, have a hard, knotty feel, in consequence of the swelling of the glands by which the lacteal fluid is secreted. The nipple also becomes more prominent, and increases in diameter, while the areola around it assumes a purplish tinge, and has on it several little raised pimples of a yellowish-white color. 4. Enlargement of the womb and abdomen, which, in the fourth month, becomes very perceptible; the womb, which may now be felt in a firm rounded body, having ascended above the bone of the pubes, and pushed the bowels up into the abdomen. 5. A tendency to flatulent distention of the stomach, toward evening especially, rendering insupportable a pressure of stays, etc., which in the morning could be easily borne. 6. "Quickening," which is the mother's first perception of the second life within her; there is at first, probably, a very slight tremulous motion, like a mere pulsation; this, day by day, grows stronger, until it becomes quite distinct—often painfully so. There are other and less obvious signs, which only the professional man would be likely to detect; all may notice, however, the change which generally takes place in the countenance; the mouth and eyes seem to enlarge, and the nose becomes what is generally termed more or less pinched up; there is an alteration, too, in the color of the eyes, which become somewhat paler; especially is this perceptible if they are blue eyes. Then, the patient is generally

fidgety, peevish, and restless, exhibiting a high degree of nervous irritation; she has odd fancies, and longings after out-of-the-way things and articles of diet, which should be procured for her if possible. At such a time she requires soothing and humoring; harsh and unkind treatment will be likely to have a most injurious effect, both upon her and her offspring.

Touching the disorders to which pregnant women are liable, local and general, we may observe, in addition to those already mentioned above, that a varicose condition of the veins of the legs is one of the most common; it usually occurs during the latter months of pregnancy, and arises from the pressure on the trunk veins in the pelvis. This is sometimes very painful and distressing, the veins becoming very dark-colored and swollen, and often permanently varicose, so that an elastic stocking, which is at first put on to afford temporary relief, has to be always worn.

Constipation during the latter months of pregnancy is nearly always present, the pressure upon the lower bowel being the cause. Neither aloes nor any violent cathartic should be taken. A moderate dose of castor-oil may be administered about every other day, or as often as necessary. Piles are often very troublesome to pregnant women.

Cramp is also sometimes very violent and troublesome; it is confined to the lower limbs, and occasioned by the pressure of the enlarged womb upon the nerves; there is also often great irritability of the bladder, and violent headache.

The troubles peculiar to pregnancy should be managed, rather than actively treated, and always with a view to the end. Remember that they are mainly a necessary consequence of a condition that can be completely changed only in nine months. Delivery will cure them all, and nothing else can effectively do so; therefore, worry along. Every dose of medicine given to a pregnant woman has an ill effect on her child.

"A pregnant woman," says Montgomery, "should be made aware that the advantages obtained by well-regulated habits are by no means exclusively conferred on her, but that others equally important are likewise conferred on the child, for whom a larger supply of nutrition, and of a better quality, will thus be provided; and so, being nourished by sound and healthy fluids, will commence its career of life strong, vigorous, and less liable to those morbid debilities and derangements which affect the children of the indolent, the pampered, or the debauched." The mother in expectancy should bear this in mind, and, not only for her own sake, but for that of the being in embryo, on whose future health and destiny she will exer-

cise so great an influence, let her avoid all unnecessary causes of excitement, all undue fatigue and exposure to weather; let her lead a quiet, regular life; take good, nourishing diet, but not rich and luxurious. It is a mistake to suppose that *more* food is required during pregnancy than at any other time; the stomach then partakes of the irritability of the whole system, and to overload it, as is frequently done, is sure to increase, if it does not cause, the sickness to which we have alluded as one of the symptoms of pregnancy. Therefore, let the eating and drinking be moderate, and let moderation, too, be the rule in all the pleasures and enjoyments of the senses. No woman who is in the family way should, if she can possibly avoid it, witness a scene of deep distress, or acute suffering; or read or listen to any fearful and harrowing recital; her nervous system is in a state of extreme impressibility, and neither the feelings nor the imagination should be unnecessarily excited; if they are, the mind is likely at such a time to lose its balance, or a prejudicial effect may be produced on the child yet unborn.

There is a condition of the female system, called spurious pregnancy, that leads often to peculiar delusions. It is most frequently observed about the turn of life, when the catamenia, becoming irregular, previous to their final cessation, are suppressed for a few periods, and at the same time, the stomach being out of order, nausea or vomiting is experienced, the breasts enlarge, become sensible, or even slightly painful, and sometimes a serous fluid exudes from the nipples and orifices of the areolar tubercles; the abdomen grows fuller and more prominent, especially in women of full habit, and constitutionally disposed to *embonpoint*, and the abdominal enlargement progressively increases, partly from deposition of fat in the integuments and in the omentum, but still more from distention of the intestines by flatus, which, passing from one part to another, communicates a sensation like that produced by the motion of a fœtus. The nervous system is generally much disturbed, and the woman feels convinced that she is pregnant, an idea which, at the time of life alluded to, is cherished by the sex with an extraordinary devotion, and relinquished with proportionate reluctance; and not unfrequently, at the end of the supposed gestation, the delusion is rendered complete, and almost assumes the character of a reality, by the occurrence of periodical pains strongly resembling labor.

ACCIDENTS OF PREGNANCY.

These are abortion, or miscarriage, and premature birth. All these names mean a discharge of the contents of the womb before

the full term; but abortion and miscarriage are applied to this discharge when it takes place so early in pregnancy that the fœtus cannot live, and premature birth is applied to the same occurrence when not inconsistent with the life of the child—that is, when it takes place at any time between the seventh and ninth month. It has been said that a child born in the fifth month has lived; it is very doubtful, and the seventh month is better regarded as the earliest possible date.

ABORTION.

Abortion, or miscarriage, as it is more commonly termed, may proceed from various causes, such as a sudden shock to the system by a fall or fright, straining, or overreaching; the administration of strong purgatives or emetics, excessive indulgence in venery, or aught which may tend to debilitate the system; malformation of the generative organs; fevers and severe inflammations; syphilis, or constitutional disease of any kind; the growth of polypi or tumors in the cavity of the uterus, or adhesion to the surrounding viscera; too great contractility of the uterine fibres and blood-vessels; most frequently, perhaps, it is a diseased condition of the fœtus itself, which, wanting the elements of growth and vitality, is rejected as a useless and troublesome incumbrance. Two classes of females, very different in constitution and appearance, are more than commonly liable to abortion, viz., those of a voluptuous and plethoric habit, and those of a weak and irritable frame. For obvious reasons, it is more common for women of the lower orders to miscarry than those of the middle and upper classes; those who continue to suckle after conception has again taken place render themselves liable to it, because a certain amount of nutriment required by the fœtus goes to the formation of the milk.

Pains in the lower part of the abdomen, in the loins and hips, occurring most frequently at about the second or third monthly period after suppression has occurred, are the premonitory or threatening symptoms. They may pass off as such, or they may be followed by a discharge of blood, either in considerable quantities or sometimes not exceeding the flow in ordinary menstruation. From the latter it may be distinguished by the character of the pain, which is expulsive and bearing down, and by the color of the discharge, which is bright. The absolute occurrence of abortion can only be determined by the discovery of the conception (the ovum); it is, therefore, a point of importance, where miscarriage is suspected, not to throw away the discharges without careful examination. At the earliest stages of its existence, the ovum is a small, colorless

bladder, about the size of a hazel-nut or walnut, containing a transparent fluid. At later periods the ovum, being larger, is not so easily overlooked, unless it has been ruptured; but even then the partially-developed child will be discoverable.

TREATMENT.—Attention to the general health, and the observance of all means for strengthening the system, will tend to prevent this accident. Particular care to be taken as the period approaches at which this occurrence may be anticipated. At this time it is advisable that the patient should sleep alone, and upon a mattress. Gentle exercise; rest on a sofa as much as possible.

For the symptoms of threatened miscarriage, the patient should go to bed (if on a mattress, so much the better); the room should be freely ventilated and kept cool; the diet should be light and unstimulating. From fifteen to twenty drops of laudanum, according to the severity of the pain, may be given, and repeated, if required, in three or four hours. A dose of castor-oil or epsom salts should be taken in six or eight hours afterward.

If these precautions have not been taken, or have not availed, the patient should be laid on a bed, lightly covered, the room kept cool, and the hæmorrhage checked by the application of napkins, dipped in cold water, to the lower part of the body. The profuse discharge which takes place may sometimes be checked by plugging with a cambric handkerchief, or piece of sponge dipped in cold water.

PREMATURE BIRTH.

This is an accident to be most carefully guarded against, for a child born before its regular time can scarcely be expected to have the strength and vigor of one which attains its full development in the womb. Nevertheless, cases have been known in which the early-born child has grown up hearty and strong, and there are also cases in which, for the mother's sake, a premature labor is desirable, as giving the only possible chance of producing living offspring at all. There may be an unusually small pelvic cavity, owing to some malformation, or a narrowing of the passage through which the fœtus has to pass, so that it can only do so by an operation, involving death to the child and great danger to the mother. Of course, none but a professional person should be intrusted with the delicate task of bringing about a premature birth, and he should only do it in a case of absolute necessity.

LABOR, OR CHILDBIRTH.

There are certain preliminary matters which deserve attention in the preparation of the lying-in chamber. The bed should be prepared, or "guarded," by covering the right-hand side of it with a skin of leather, or piece of water-proof fabric, laying over these three or four folds of sheet. The patient should change her dress so that she have on only her under-garments and night-gown, over which, so long as she may be able to move about her room, she should wear a loose dressing-gown. The under-garments should be so arranged as to be easily slipped down after the labor is ended. The monthly nurse and one female friend should be the only persons in the room besides the patient and the attendant. The room should be well ventilated, and kept at a moderate temperature. If the bowels be costive, the patient should take a clyster of warm gruel, as soon as labor begins. The last stage of the labor is often shortened thereby. The diet, until labor is finished, should be light, unstimulating, and nourishing, varying but little from the ordinary habit. The conversation should be cheerful, as little as possible having reference to labors, and suspended or moderated during the pains, as it is often very irritating to women at these moments.

If she be a strong, healthy woman, and no unusual complications arise to disturb the natural process, but little aid or interference may be required. There will be the usual warning symptoms—intermitting pains in the back, slight at first, but increasing in intensity; there will probably be a slight discharge of mucus, stained with blood, and perhaps also a considerable discharge of a clear fluid, popularly called "the waters;" this is an albuminous liquid filling up the membrane in which the fœtus floats, and so preventing pressure; it sometimes does not escape until labor has actually commenced, by the falling down of the child into the pelvis. When this takes place, the recumbent position should be assumed; previous to this it is best for the patient to sit upright or walk gently about, and so assist the action of the uterus.

When the child is born, care is to be taken that it has breathing-room, and that the bedclothes, etc., do not prevent access of air to its mouth. When the body has been expelled, it should be turned on its back. The infant will generally begin to cry immediately; should this not occur, a few slaps should be inflicted on the face, chest, etc., with a towel dipped in cold water. This will in most instances suffice to cause the child to draw in a short inspiration; it will then cry, and respiration will be fully established. As soon as

this takes place, the navel-string is to be tied and divided. This is a very simple operation, and only requires attention to the following directions: Take four or five lengths of strong brown thread; of these make two strings, each about fifteen or sixteen inches long, tying a knot at each end. The navel-string being then taken hold of, is to be tightly tied round with one of these ligatures, at about an inch and a half or two inches from the child's abdomen. The other ligature is next to be tied about two inches nearer to the mother. The navel-string is then to be cut through with a sharp pair of scissors, between these two ligatures. If it should bleed afterward, another ligature should be tied.

Attention must next be given to the placenta, or after-birth. The removal of this is often a delicate and dangerous operation. It is very commonly discharged without any other assistance than the natural power of expulsion given to the womb, within an hour or so after the delivery, sometimes immediately after, and until it is there must be considerable anxiety as to the result, the labor-pains caused by the contraction of the womb continuing at longer or shorter intervals to rack the patient, and serious flooding generally coming on, if the offending substance is not quickly removed. When the after-pains, as they are called, are protracted beyond the period above-named, and the placenta does not come away, the medical man, or, failing him, an experienced nurse, will generally attempt to assist Nature in its removal; one hand is pressed on the lower part of the abdomen, and the other, well oiled, is passed gently into the womb, so that it can grasp the after-birth, and, without breaking or tearing the substance, bring it carefully away from its point of adhesion, waiting for a return of the after-pain to remove it entirely. Force must not be used unless the case becomes desperate, and the patient appears likely to sink from a continuance of the pains and loss of blood, in which case it is better to risk tearing it away; but in all cases dexterity is better than force. By giving the after-birth a slightly twisting motion as it is withdrawn, the membranes which line the interior of the womb during pregnancy may generally be detached and brought away with it; but, if they cannot, they may safely be left to be afterward discharged, as they do not cause the irritation which the placenta does.

The employment of force in the abstraction of the placenta may turn the womb inside out, like a pocket, and thus produce a dreadfully diseased condition. In those cases, therefore, in which it does not spontaneously come down into the vagina, medical assistance is absolutely necessary, if it is possible to get it.

As soon as the placenta is taken away, a broad bandage or towel

should be passed round the body of the mother, so as to cover the hips, drawn tightly, and pinned or tied, so as to sustain a pressure upon the womb, and stimulate the vessels to return to their normal condition.

If the after-pains are severe, they may be relieved by a pill, containing one grain of opium and two grains of camphor; but it should be remembered that within a certain limit these pains are useful and salutary. Perfect stillness is to be enforced for three or four hours. It is important that the patient should not be allowed suddenly to assume an upright or sitting posture. A little cold tea or gruel may be administered. The soiled garments, etc., are to be removed, dry napkins applied, and the patient gently moved up in the bed, then left to sleep, if she can. Light nourishment, as beef-tea, gruel, sago, tea, etc., may be given from time to time.

For eight or more days after a labor, the recumbent position should be strictly maintained. Some women feel so well and strong in a day or two, that they will sit up, and sometimes even get out of bed, and make themselves useful in the house. We have seen a shoemaker's wife scrubbing the floor the day after delivery, and we have heard of females undergoing the pains of labor under a hedge by the roadside, and in a few hours proceeding on their journey, with their babes at their breasts. But these women were semi or entire barbarians; they had not been delicately nurtured. With the immense advantages, we must also take some of the disadvantages of civilization, and those who give birth to children surrounded by all its comforts and luxuries must not attempt to emulate the Indian squaw, or the scarcely less favored laboring-women of some countries, in this respect; if they do, they will inevitably suffer for their temerity. Getting about too early after childbirth is, perhaps, the most fruitful of all sources of uterine disease. The consequences may or may not show themselves at once, but, whether or no, bad consequences there will most likely be; therefore, we warn all mothers to keep their beds long enough. But little exertion should be made until the end of the first fortnight; if there is a necessity for getting about earlier, of course it must be done, for necessity has no law; but, unless there is, the risk should not be run; delicate women especially do wrong to attempt it, and the strong will be likely to render themselves weak by the practice.

In what has been hitherto said, we have supposed labor to proceed naturally; but sometimes events occur fraught with danger, as a wrong position of the child, or flooding, or convulsions.

PLACENTA PRÆVIA.

If there has been a slight show once or twice some weeks before the time, and then the labor begins with flooding, it is probable that it is a case of placenta prævia, in which the after-birth is attached to the womb at its mouth, and prevents the passage of the child. This accident is rare, but very dangerous. Plug the vagina with cloths; keep the woman on her back and quiet, to prevent pains as much as possible, and get a physician, despite any obstacles.

FLOODING.

This accident commonly occurs in weakly persons, immediately after delivery. It is owing to deficient contraction of the womb. If the womb contracts, its muscular fibres, like so many cords, bind up the mouths of the blood-vessels, and blood cannot be lost. If, on the contrary, from exhaustion or other cause, the womb lies loose in the abdomen after labor, the mouths of the vessels are open, and the blood is lost in gushes.

Contraction of the womb is the only remedy for hæmorrhage from that organ, and therefore our efforts should be directed to secure this contraction as speedily as possible. One of the most effectual means to obtain this is, by friction and pressure of the surface of the abdomen over the seat of the womb. This part should be courageously but cautiously grasped, and well rubbed, until the womb is found to contract under the hand, when the bleeding will be arrested. Another of the very powerful means of checking flooding is, dashing cold water on the naked abdomen from on high. After thus dashing the cold water on the abdomen, it will be proper to continue the application of cold, by means of wet cloths kept constantly applied to the parts, till all hæmorrhage has ceased; the windows should be at the same time thrown open, and the patient covered only with a sheet, and kept perfectly quiet.

Should this plan fail, or there is reason to suspect the retention of clots of blood in the womb, the accoucheur's hand should be directly introduced and the clots be withdrawn, when the bleeding will often immediately cease. It is probable that the gentle stimulus or irritation conveyed to the womb, by the simple introduction of the hand into its cavity, has some effect in every instance where benefit has followed the practice; therefore, we may calculate upon a frequent advantage from this stimulus alone, even where there are no clots to bring away.

Should the rush of blood be so prodigious as to produce great

and sudden exhaustion, and thus threaten the immediate extinction of life, the warmest and most active cordials must be given. Wine or brandy, in an undiluted state, should be administered; and, if we succeed in rousing the patient, they should be dropped by degrees or exchanged for food of a rich and nutritive, but less stimulant description. Opium also is, in this condition of the female, of the greatest value, especially in irritable, delicate constitutions; and it must be given in the extremity of danger in large quantities, as one or two teaspoonfuls of the tincture for a dose (in water, or brandy-and-water), to be frequently repeated. Opium restores the lost energy of the arterial system, and, in the nervous agitation which follows flooding, is sometimes capable of saving persons apparently in the jaws of death.

PUERPERAL CONVULSIONS.

These are apt to occur during the latter weeks of pregnancy, but are more imminent during labor, or the lying-in state.

In one class of cases the convulsions are preceded by headache, giddiness, sense of weight and throbbing, and other symptoms of congestion in the brain. In another class, and that the most numerous, they occur in weak, nervous, and hysterical females. The peculiar condition of the constitution in the state of pregnancy, and at the time of labor, is the common cause. The fits are sometimes excited by indiscretion, by indigestible articles of food. If they occur during labor, they generally subside as soon as delivery is completed.

TREATMENT.—Where there are signs of congestion about the brain, leeches should be applied to the head, and strong purgatives and clysters administered. Ten grains of calomel should be given at once; if this do not purge in two or three hours, it should be followed by one drop of croton-oil, placed on the tongue or mixed in a little sugar. A turpentine-clyster should be administered. Mustard-plasters should be applied to the soles of the feet or calves of the legs. Stimulants should at the same time be given.

In the other class of cases, such as occur in hysterical, nervous, and feeble women, with small pulse, a different plan of treatment must be followed. Here the fits are rather dependent upon exhaustion than on congestion. Let the patient breathe from time to time a little chloroform on a handkerchief—not enough to put her to sleep, but sufficient to quiet the system and prevent the wear of labor.

MANAGEMENT OF THE INFANT.

Where we gave directions for cutting the navel-string, we told what should be done previously to secure some vital signs from the child. The cord should not be cut till the child has given indications of life, as, until it has breathed, it must depend upon the circulation from the placenta.

Should the child not breathe after the above-mentioned measures have been adopted, it should be placed in a warm bath, while attempts are made to inflate its lungs by breathing into its mouth, holding the nostrils, to prevent the escape of the breath that way. Gentle pressure should at the same time be made upon the upper part of the windpipe (Adam's apple), to open the orifice of the larynx, and thus facilitate the entrance of air into the lungs. The sides of the chest should then be gently depressed, so as to empty the lungs. These operations may be alternately repeated so long as the slightest pulsation can be felt in the region of the heart.

The child, having been separated from its mother, is to be wrapped in a warm flannel. It should then be well washed with warm water and soap, near (not close to) a fire. The child's body is covered with a white, unctuous substance, which is sometimes difficult to remove. If the first soap-and-water washing do not remove this, the surface should be smeared with oil or lard before the second washing; this will soften the white substance, and render it more easily removable by soap and water.

When the child has been wiped dry, the remainder of the cord, or navel-string, is to be enclosed in two or three folds of soft rag, and laid upward on the abdomen. A band of soft flannel should then be passed twice round the body, not tightly. If the navel-string should ooze at all—and this should be carefully noticed before the bandage is placed—a second ligature should be tightly tied. If, however, it should still bleed, a little plaster of Paris, if it can be procured, will stop, or treat as in bleeding from leech-bites. In from five to ten days the navel-string separates; it should not be pulled at, as this may lead to protrusion afterward. Swelling or puffiness of the scalp is generally noticed after hard labors. This may be left to itself, and will disappear in a few days. After the washing and dressing are complete, the child should be placed in bed with its mother, and its mouth put to the nipple. There may or may not be milk at first, but the child's suction accelerates the secretion, and stimulates the womb to contract, thereby diminishing the risk of hæmorrhage.

The warmth of the mother will be of service to the infant.

Newly-born children do not maintain their own warmth. When thoroughly warm, the infant may be placed upon a pillow in a cot or bassinette. If no milk appear in the mother's breast after twelve hours, nothing should be given to the infant but warm milk-and-water; this should be repeated every two hours until the mother can afford a supply.

Castor-oil, butter-and-sugar, etc., are often forced down the throats of infants, for no good reason whatever. The first milk that is secreted by the mother has all the aperient properties that can be ordinarily needed for the removal of the dark secretion contained in the bowels of the child at birth. There is certainly no occasion to physic a child directly it comes among us. If the contents of the bowels should not be evacuated for a couple of days, a teaspoonful of castor-oil may be given. Accurate examination should first be made, in order to ascertain that no malformation exists to prevent the passage of the motion.

PUERPERAL FEVER.

This is a fever of a very high character, arising from inflammation of the serous membrane, and sometimes of the womb itself, and of its veins and absorbents; it runs a very rapid course, and is often fatal. It assumes the character of an epidemic, and frequently causes great mortality; whether it is really contagious or not is yet an open question. The circumstance that it has been known in several instances to attack the patients of one medical man, while all others in the locality have remained free, seems to favor the impression that it is. The mere probability that it may be so should render persons extremely cautious in their intercourse with those who are suffering under it. This is sometimes called *puerperal peritonitis*, because the peritonæum appears to be its chief seat; great tenderness of the abdomen, with fulness and tension, is one of its most constant and characteristic symptoms; there are also usually an anxious countenance, sickness, hurried respiration, a furred tongue, and a stoppage of the secretions, especially of the milk. When these symptoms occur soon after childbirth, no attempt should be made at domestic treatment; let the medical man be summoned immediately, if he be not in attendance. If the patient is able to bear it, he may bleed and leech pretty freely, and give a full dose of calomel, followed by castor-oil, and employ other depletive measures, to reduce the inflammatory action; this active treatment will be followed up with calomel and opium in grain-doses, should the pain and inflammatory symptoms continue. It is often difficult to distinguish

between this fever and true peritonitis, and only one skilled in the diagnosis of disease would be likely to treat it properly.

INSANITY, PUERPERAL.

Either a few days or hours, it may be before, or more commonly after childbirth, the mother becomes somewhat strange and excited, suspicious of her friends and attendants, imagining evils and dangers to herself or child; or her affections are entirely alienated from her offspring, which, if not carefully watched, she might injure. The patient's spirits are greatly depressed; she will cry often and long; melancholy alternating with the state of excitement characterized by incoherent volubility and irritability of temper. The pulse may be increased in rapidity; but this, as well as other bodily symptoms, may show but little indication of disease.

The symptoms may subside in the course of a few days or hours, or they may pass into furious mania or melancholy. The above constitutes the faintest outline of this affection, which presents many forms and degrees of severity. It should suffice, however, to put the attendants of a lying-in woman upon their guard, in the event of the appearance of such symptoms.

Upon the first occurrence of the symptoms in a milder degree, a dose of tincture of opium, twenty to fifty drops, should be given, and repeated at intervals of four or six hours, according to the effect produced. An aperient draught should be given if the bowels are costive. The greatest care and vigilance are required, in watching that the patient does not injure herself or offspring. When such symptoms appear, the woman ought never to be left entirely alone. If she be very violent, the arms may be pinioned down to the sides by a strait-waistcoat, or a sheet folded broad and firmly bound round the body. This should not be had recourse to if it can safely be avoided; but, where there are not sufficient or competent attendants, it is the best plan to use some restraint of this kind. By thereby preventing the patient from augmenting her excitement, she will often become quiet, and fall off into a refreshing doze.

It is scarcely necessary to observe how important it is, in such a case, to spare no effort to obtain medical advice.

MILK FEVER.

At the secretion of milk there is some inevitable excitement, and what is called milk fever is an aggravated form of the excitement, which takes place at the onset of lactation: its first symptoms are

increased heat of the system, preceded by shivering, and sometimes accompanied with vertigo and slight delirium; these are followed by severe headache, thirst, dry tongue, quick pulse, throbbing of the temples, and intolerance of light.

The *cause* may be a cold, or overheating the apartment, too stimulating a diet, or any obstruction to the flow of milk from the breast.

The *treatment* should be spare diet, perfect tranquillity, subdued light, cooling drinks, and saline aperient medicines; the head should be kept somewhat elevated, and bathed with cold water or evaporating lotions. If the symptoms should become worse in spite of this, apply half a dozen or more leeches to the head, and put the feet in a warm mustard-bath. Most lying-in women have more or less of this fever; if, however, it is not checked, the arterial action runs too high, and no milk at all is secreted.

GATHERED BREAST (*Milk Abscess*).

There are sharp, shooting pains, and hardness of the breast, with redness of the skin, as the inflammation extends and approaches the surface; feverishness; when matter has formed and comes to the surface the pain is less acute, but still severe and throbbing; shivering takes place; the skin becomes discolored at one or more points, then gives way, and the matter is discharged often in great quantities.

Such are the symptoms in the commonest form of inflamed breast, occurring to women who are suckling or weaning. Inflammation of the breast does, however, sometimes occur in young girls, especially about the period of puberty. The pain is considerable, but it seldom proceeds to the formation of abscess. Even the breasts of newly-born infants are apt to become inflamed; but this inflammation rapidly subsides, if let alone.

The causes are cold; bruises; weaning; irregularity or want of care in nursing, by which the breasts are permitted to become loaded and over-distended with milk.

TREATMENT.—In the outset, rags wetted with tepid water may be laid on the breast, which should be supported by a handkerchief passed under it. The fulness of the breast is relieved by suckling, or the breast-pump or drawing-glass. In addition to this, the rubbing the surface of the breast gently with camphor-liniment three or four times a day will often disperse the hardness.

If the preceding means fail, let the breast be well but gently rubbed with a soft hand, into the palm of which is poured fresh

olive or almond oil; the friction should be continued for about ten minutes, and repeated every four hours or so. Goose-grease and other fatty substances are recommended, but simple oil is best, the friction being the principal agent for good. Between the intervals of this, the breast should be kept covered with a tepid-water dressing, having over it oiled silk to prevent evaporation. Care should be taken during this treatment to keep the bowels gently open, and to keep under the febrile symptoms. Leeching the breast in case of threatened abscess is sometimes resorted to, but its utility is very questionable; at all events, it should never be done unless under proper direction. There may be cases in which it is advisable. A mammary abscess will frequently continue discharging for a considerable period, and, during this time, the patient should be supported by a nourishing, although light diet: stimulants are generally to be avoided, but sometimes they are really necessary. A warm bread-poultice is best for the abscess; it should be changed about every four hours, and covered with oiled silk: when the discharge has nearly ceased, simple tepid-water dressings may be substituted. The breast, during all this time, should be supported by a soft handkerchief, tied round the neck. An application of collodion all over the part has sometimes been used; it forms a thin coat, which, contracting as it dries, affords the necessary support, if the breast is not very large and heavy. If some amount of pressure is required, strips of strapping crossing each other will effect this object.

CRACKED NIPPLES.

Very painful and distressing cases of sore nipples frequently occur after childbirth. Sometimes they cannot be avoided, but frequently they arise from too great an anxiety on the part of the mother, who is constantly meddling with them, applying the mouth of the child, and resorting to all sorts of expedients to draw them out. A judicious nurse will prevent this, and also take care to guard the breasts, as much as possible, from those constant alternations of wet and dry to which they are exposed. Nipple-shields of ivory, or glass, with india-rubber teats, may be readily procured, and should be used when the nipples are too sore and tender to bear the application of the child's mouth: in this case, the milk must be drawn from the breast by one of the contrivances above-mentioned, and given to the child in a feeding-bottle. Glycerine has been found a good application for chapped or otherwise sore nipples; it must be applied with a camel's-hair brush, first wiping

the part dry with a piece of soft linen : if obtained pure, there will be little or no smell in it to annoy either mother or child.

WHITE LEG (*Inflammation of the Veins of the Lower Extremity*).

At an uncertain interval after childbirth, the patient experiences shivering, sickness, rapid pulse, sense of prostration, thirst, and furred tongue. Pain is felt in the region of the womb, and, in the course of a day or two, extends to the groin and upper part of the thigh, which are tender when pressed. The tenderness may be traced in a narrow line along the inner side of the thigh down to the back of the knee-joint, and down the calf of the leg. The skin of the leg and entire limb becomes tense, white, and shining ; hence the name of the malady. The impression of the finger is retained for some seconds after its pressure has been removed. Movement of the limb becomes painful. These symptoms vary greatly as to degrees of severity and as to duration. In some instances they may all have disappeared in a few weeks ; in others they may last for months, and prove a source of much pain and difficulty in walking.

One or two dozen leeches should be applied to the groin, followed by fomentation and poultices. Ten grains of Dover's powder to be given at bedtime, to allay pain. The bowels should be regulated by four or five grains of blue-pill and a dose of castor-oil, or a rhubarb-draught. The diet should be light and unstimulating. As the inflammation extends down the limb, the occasional application of a few leeches at different points will be found serviceable.

The entire limb should be enveloped in flannel wrung out of warm water, and then enclosed in thin water-proof material. The best kind is the thin gutta-percha tissue. This application to be changed as often as required to keep the limb warm. When all the inflammatory symptoms have subsided, the stiffness and immobility of the limb may be relieved by the use of stimulating liniments.

CHILDREN AND THEIR DISEASES.

FEEDING.

ONE of the most fruitful sources of disease, in the early days of infantile life, is improper management in relation to diet, and a large proportion of the suffering and mortality which occur during this period arises from this cause alone. It is necessary to nurse upon a regular plan, to insure the present and future health of the child.

It is a great error to give the infant either the breast or the bottle too frequently; every three or four hours will be often enough in most cases; a child is not always hungry when it cries; there may be pain or uneasiness of some sort, and overfeeding will only increase the evil, although sucking may for a time keep it quiet; the digestive organs require rest with the young, as with adults.

The position of the infant during the time of feeding is of consequence; if fed from the breast, it will naturally be placed in a semi-erect position; and if artificially, it should also be slightly raised, and in the latter case care should be taken to keep the body warm; for it should be remembered that, while suckled at the breast, it derives great warmth therefrom; in this position, too, it can swallow the food more comfortably than when laid flat on its back, and the nurse can more easily perceive when it has had enough.

During the first few weeks of existence, the infant will fall asleep immediately after having the breast, and this, as being the order of Nature, ought to be encouraged. If, from thoughtless gayety or activity in the nurse, it be dandled, carried to the window, or otherwise excited, indigestion will be sure to follow, accompanied possibly by nervous irritation, colicky pains, or bowel-complaints; even when so much sleep is no longer required, quiet for some time after feeding ought to be encouraged, as much bodily activity immediately after meals is unfavorable to easy digestion in a delicate constitution.

If the child require to be fed artificially, it should be on milk. Milk ought to be the diet of infants for a certain time, and it alone will be sufficiently nourishing for nineteen out of twenty children. Fewer children would perish, if so fed, than are destroyed by rushing into the opposite extreme of feeding them with more viscid food; the use of farinaceous food for all infants under the age of nine months taxes severely the powers of assimilation.

The best substitute for the breast-milk is a mixture of two parts cow's milk, one part water, and this well sweetened with loaf sugar. There is but little fear of making it too sweet, as any one will understand who tastes a sample of good, healthy breast-milk. In vigorous children, there may be added to this mixture a small portion of the strained fluid from well-boiled oat-meal or barley. As to the temperature of the food, our great aim ought to be to follow as much as possible in the footsteps of Nature; and as we may observe that 96° or 98° Fahr. is the temperature of the mother's milk, so should we give it to the infant; and, for the purpose of regulating this, as well as the state of the atmosphere, a thermometer should be kept in every nursery. The milk should not be boiled, but a jug containing it may be placed in boiling water, and so the required heat obtained.

The only proper apparatus for feeding a child is the simple plain glass nursing-bottle, with a wide mouth and a plain India-rubber tube or nipple. Reject absolutely all the patent contrivances by which the food is drawn up through tubes. The great necessity is that the bottle should be kept scrupulously clean, and this is only possible in the plain bottle and nipple. In all the other contrivances, some of the food remains and gets sour. Neither the bottle nor the nipple should ever be laid aside without being thoroughly washed with hot water, and wiped dry. The mouthpiece should not be put into the bottle until required. A bottle-brush, an extra teat, and an extra bottle, in case of accident, should be kept in the nursery.

WEANING

If a child has cut four teeth, is in good health, and its bowels are regular, it should be weaned when nine months old, and without any previous preparation. It should be fed with a spoon, on food of biscuit-powders, or some other farinaceous preparation, made with cow's milk. A delicate child may be kept at the breast until it is a year old, but not much beyond that. If a lately-weaned child is attacked with whooping-cough, or any other severe disease, it may be necessary to give it the breast again; or should a weaned child

refuse artificial food, and pine away under the deprivation, a breast of milk should be provided for it.

EXERCISE AND AIR.—In warm and very fair weather, an infant might be taken out-of-doors when a month old; in winter it should not be taken out at all. A child born in the fall must be kept in till May, and then only taken out if the day is fine, and for not more than twenty minutes; if an east wind prevails, the child should be kept in-doors. Sleep should never be encouraged in the open air, nor should the glare of the sun be allowed to fall on its face; of course, the morning chill and evening damp should be avoided. When the infant does go out, let it be in the nurse's arms, not in a perambulator; it needs the heat of the nurse's body.

An infant should be washed regularly every morning in warm water, and it will further conduce to health to put it for a few minutes in a tepid bath, every evening at bedtime. After washing, reaction should be promoted by gentle friction of the hand for a few minutes, allowing the child to stretch its limbs before the fire, although at a proper distance from it. The most scrupulous care should be paid to the state of the skin, as the matter which is conveyed away by this excretory organ would be likely, if retained, to act most injuriously upon the susceptible nervous system of an infant. Another matter to be carefully attended to, in fat children especially, is the condition of the opposing surfaces of the skin in the creases and folds; troublesome sores, and much local irritation, acting prejudicially upon the whole system, are often the result of the chafing which here takes place if this be neglected; the moisture of such parts should be absorbed by the starch-powder, and a piece of soft linen, spread with spermaceti-ointment, and dipped in elder-flower water, should be inserted between the folds of the skin.

Sometimes a child's navel does not properly close, and then there is protrusion of the bowels as often as the child cries, or is in any way violently excited; in this case there should be placed, under the binder, a tolerably-stout compress of linen, so as to press lightly upon the aperture; this will be sufficient for the first six weeks or so, but after that a more effectual remedy must be applied, in the shape of a slice of cork, about the eighth of an inch thick, and sufficiently large to cover and project some distance beyond the aperture, padded to an inch thick with folds of linen, and affixed to two pieces of plaster.

The plaster must be warmed, and stuck on the belly of the child, in the form of a cross, and the binder placed over, so that the cork covers and presses upon the opening of the navel. This apparatus should be renewed every two or three days; when there is inflam-

matory tendency, the cork will probably have to be removed, and linen pads only used for a time; or an air-pad of vulcanized India-rubber may be substituted.

DISEASES.

The diseases of infants are: 1. Disorders of the stomach; 2. Disorders of the bowels; 3. Exhaustion; 4. Febrile affections; 5. Exanthematous diseases, or those which are attended with eruptions of the skin; 6. Affections of the head; 7. Diseases of the thorax, or chest; 8. Affections of the abdomen, or belly.

Disorders of the stomach generally depend on improper diet, or they may be secondary, and the effects of a disordered or confined state of the bowels. They are often detected by acid or fetid eructations and breath, or by the unusually frequent regurgitation or vomiting of food.

Disorders of the bowels can never be mistaken or overlooked by an attentive nurse, the evacuations, in their number and appearance, being the perfect index to these disorders.

It must never be forgotten that, whenever the system has been exposed to sources of exhaustion, this condition may become, in its turn, the source of various morbid affections, which are apt to be ascribed to other causes, and treated by improper, and therefore dangerous, measures. If the infant has had diarrrhœa, or if it has been bled by leeches; or if, without these, its cheeks are pale and cool; and if, under these circumstances, it be taken with symptoms of affection of the head, do not fail to remember that this affection may be the result of exhaustion. This important subject is generally misunderstood.

Fever is sooner detected. In every such case it is advisable not to tamper nor delay, but to send for the medical man, and watch the little patient with redoubled care and attention.

Especially examine the skin, hour after hour, for eruptions. It may be measles or scarlatina, etc. It will be especially desirable to detect these eruptions early, and to point them out to the physician. Above all things, let not a contracted brow, an unusual state of the temper or manner, unusual drowsiness or wakefulness, or starting, and especially unusual vomiting, escape.

Be alive to any acceleration, or labor, or shortness of the breathing, or cough, or sneezing, or appearance of inflammation about the eyes or nostrils. These symptoms may portend inflammation within the chest, whooping-cough, or measles. Pain of the body, with or without vomiting, or diarrrhœa, with or without a morbid state of the bowels, or of the discharges, ought also to excite immediate at-

tention. One caution should be given on this subject: some of the most alarming and fatal affections of the bowels, like some affections of the head, are unattended by *acute* pain or tenderness; their accession, on the contrary, is insidious, and it will require great attention to detect them early.

Another view, and another mode of the classification of the diseases of infants, full of interest, and of admonition, is—1. As they are *sudden*; or 2. As they are *insidious*; or 3. As they are, in the modes of accession, intermediate between these two extremes.

Of the sudden affections, are fits of every kind, croup, and some kinds of pain, as that of colic; of the second class are hydrocephalus, or water on the brain, and tubercles in the lungs or abdomen, constituting the two kinds of consumption. Fits, again, are cerebral, and arise from diseases within the head, or from irritation in the stomach and bowels, or from exhaustion; or they are evidence of, and depend on, some malformation or disease of the heart.

Domestic treatment should never be trusted in such serious affections as these; not a moment should be lost in sending for the medical man.

If any thing may be done in the mean time, it is—1. In either of the two former cases to lance the gums; 2. To evacuate the bowels by the warm-water injection, made more active by the addition of brown sugar; 3. And then to administer the warm bath. An important point, never to be forgotten in the hurry of these cases, is to reserve the evacuations for inspection, otherwise the physician will be deprived of a very important source of judgment.

In cases of fits arising plainly from exhaustion, there need be no hesitation in giving five drops of sal-volatile in water; light nourishment may be added; the feet must be fomented, and the recumbent posture preserved.

In fits arising from an affection of the heart, the symptom is urgent difficulty of breathing; the child seems as if it would lose its breath and expire. In such a case, *to do nothing* is the best course; all self-possession must be summoned, and the infant kept perfectly quiet. Every change of posture, every effort, is attended with danger.

In many cases of convulsions, and other infantile affections, the use of the gum-lance affords the simplest, quickest, and readiest means of affording relief. In any case of this kind, should there appear to be danger from delay, let the mother carefully pass her finger along the child's gum, and, if it appears to be unnaturally tumid at any particular part, let her apply the instrument there. If the affection be a fit, it may be used, whether any part of the gum is hard and swollen or not, simply as the easiest mode of relieving

the system by bloodletting. A gum-lancet should always be kept, but, should this not be at hand, a common lancet or a sharp penknife will do. Make a free incision along the course of the gums, down to the teeth, or socket, if there be none; have the child's head held perfectly still, and be careful to guard against pushing the instrument too far back, so as to wound the throat. The operator should remember that perhaps the child's life depends upon the due performance of this duty, and nerve herself for the task.

There are many diseases to which infants are liable, which are very insidious in their advance, and present at first no very marked symptoms; but the watchful eye of the mother, or of a careful nurse, can generally detect the approach and progress of such—the countenance, manner, gestures, and motions of the child; the peculiarities of its cry; the state of its secretions and excretions—all afford indications of this, and any thing new or strange in either of these is sufficient to give the alarm and excite inquiry. If there is a falling off in the looks, color, and flesh of the child, there is reason to apprehend the formation of tubercles in the lungs—the harbingers of consumption.

The medicines and remedial means which must be kept for nurslings are few and simple: rhubarb, magnesia, and manna for aperients, with castor-oil; a few senna-leaves also, for infusion, may be useful. Ipecacuanha, powder and wine, as an emetic; and for cordials, brandy and sal-volatile, the former for exhaustion generally; the latter when this is connected with pain and irritation of the bowels. What shall we say about anodynes, but simply to warn against their use? except under the direction of the medical man; nevertheless, it may be prudent to have at hand a small bottle of paregoric, of which, in violent and excruciating pain, a few drops may be given. If a carminative, essence of aniseed is the best, to be combined, where there is much flatulency, with fetid spirit of ammonia, this with a little carbonate of soda for acidity of stomach; aromatic confection for loose bowels; and poppies and chamomiles for fomentations, may complete the stock of medicines, which should be kept under lock and key, and only administered by the mother, or a nurse who can safely be trusted. But the warm bath, the injection, and the tooth-lancing, are the safest remedies; therefore, let the apparatus necessary for these be always at hand and ready for use.

DENTITION.

When the child is born, the jaw is covered with gums, but underneath the gums are little cavities in which the teeth are

formed; and, as they go on growing, they at last press upon the gum, and, causing it to absorb, finally break through it. This process is frequently a source of disordered health to children, especially if any thing occurs to prevent the absorption and ready yielding of the gum to the pressure of the tooth below. The absence of teeth during the period of human infancy evidently indicates that the food required at that period does not need their employment, but it is too often forgotten that, till teeth are developed, Nature does not intend the child to take food that requires preparation by teeth in order to its digestion. The practice of feeding young children with solid food is the cause of great destruction of life; and even sops should only be sparingly administered, in cases of necessity, till the first teeth have appeared.

The order in which the teeth appear—as well as the time—is subject to considerable deviations, but the following periods will be found to be as near right as any rule liable to common exception can be:

First, or Milk Teeth.

2 lower middle incisors,	. . . . .	4th to 8th month.
2 upper “	“	4th to 8th “
4 lateral incisors,	. . . . .	7th to 11th “
4 anterior, or 1st molars,	12th to 18th “
4 eye, or canine teeth,	16th to 22d “
4 back molars,	19th to 38th “

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In some children, the whole of the teeth may be cut by the end of the third year, while in others the process of dentition may be prolonged to the fifth year.

Order of Appearance of the Permanent Teeth.

4 first molars, one on each of the two		
sides of the two jaws,	. . . . .	6th to 7th year.
4 middle incisors, two in each jaw,	. . . . .	7th to 8th “
4 lateral incisors, a little later than		
the last,	. . . . .	7th to 8th “
4 first bicuspid,		8th to 9th “
4 last bicuspid,		10th to 12th “
4 eye, or canine teeth,		11th to 13th “
4 second molars,		12th to 14th “
4 back molars, or wisdom teeth,		18th to 30th “

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Dentition is commonly preceded and accompanied with various symptoms: the child drivels; the gums swell, spread, and become hot; there is often a circumscribed redness in the cheek, and eruptions on the skin, especially on the face and scalp; looseness; gripings; stools, green or pale, or otherwise discolored; watchings, startings in the sleep, and spasms of particular parts; a diminution or increased secretion of the urine, which is often of an unnatural color; now and then a discharge of matter, with pain in making water; in almost all cases the child shrieks often, and thrusts its fingers into its mouth. Less common symptoms are a swelling of the tops of the feet and hands; the tumefying of one or more of the glands of the neck; and cough, difficult breathing, and fits.

In the *treatment* of difficult teething, *preserve a free state of the bowels*. It is surprising how great and perfect a change will often be wrought in the case of fever, convulsions, and other alarming symptoms arising from teething, by procuring an evacuation and improving the secretions by the use of minute doses of calomel and jalap. Whenever, therefore, the teething of a child is difficult or painful, give immediately a little rhubarb and magnesia, or four grains of compound jalap-powder, in water, and afterward a teaspoonful of castor-oil daily, so that the bowels may be freely moved every day; to which add great attention to diet, which should be very simple, smaller in quantity than usual, and of the most digestible nature, with plenty of pure air and exercise.

A very excellent medicine for children during teething is the *liquor potassæ*, or *alkaline solution*, with rhubarb, as prescribed in this form:

Take of liquor of potassa, or alkaline solution,	1 drachm.
Infusion of rhubarb,	6 drachms.
Dill-water,	7 drachms.
Simple syrup,	2 drachms.
Give the child one teaspoonful twice or thrice a day.	

MUMPS.

This disease, which is a contagious epidemic, consists of inflammation of the salivary or parotid glands, which are situated on each side of the lower jaw. It commences with slight febrile symptoms of a general character; very soon there are redness and swelling at the angle of the jaw, which gradually extend to the face and neck near to the glands; these sometimes become so large as to hang down a considerable distance, like two bags. But little medical treatment is required for this disease when at its height: the patient, from sheer inability to move the jaw, must live chiefly on liquid food; and it

is well for him to be kept low, unless very delicate, in which case a little good broth or beef-tea should be given. If there is much pain, the throat should have hot fomentations applied, and perhaps two or three leeches. Mumps is not a dangerous disorder, unless a too active local treatment is resorted to. This, however, while it will seem to subdue the disease, will merely drive it elsewhere. It will then affect in boys the testicle, and in girls the breast, or the brain in either, and the disease becomes more dangerous as the system is more disturbed by disease of these parts.

THRUSH.

This disease is common with infants who are fed improperly, or upon artificial food; it consists of an eruption of small white or ash-colored ulcers, on the inside of the mouth and edges of the lips, not unfrequently extending to the throat and fauces; it is caused by irritation of the bowels, and generally gives rise to excoriations about the anus and nates. When these symptoms appear, nurses say it is "going through" the child, and indicate a speedy termination of the disease. Under ordinary circumstances, and if sufficient attention be paid to it, thrush is not a dangerous affection; but, if neglected, and sometimes if not, it assumes a gangrenous character, the ulcers increase in size and become livid; it is then much to be feared.

TREATMENT.—As this disease is nearly always attended with diarrhœa, some anti-acid and astringent mixture should be given, after, perhaps, one dose of rhubarb and magnesia; the compound chalk-mixture of the pharmacopœia, with a few drops of laudanum, should the irritation be very great. To the eruptions of the mouth should be applied, with a camel's-hair brush, a little honey and borax, in the proportion of six drachms of the former to two of the latter; or, in aggravated cases, a lotion composed of nitrate of silver, one scruple dissolved in one ounce of water. Dust over the excoriated nates and anus with hair-powder, or damp them with Goulard-water, two or three times a day. If the child is at the breast, great attention should be paid to the diet of the nurse; if not, the food must be at once simple and nutritious, milk forming the chief part of it. If the disease assumes a gangrenous character, there will be great exhaustion, and beef-tea and tonics will be required; for young children something like this:

Dilute nitric acid,	1½ minims;
Syrup of orange-peel,	½ an ounce;
Infusion of calumba,	1 drachm;
Water,	3 ounces.

Take a dessert-spoonful twice or three times a day.

RED GUM.

This generally attacks infants at the breast, and is characterized by an eruption of minute hard pimples, sometimes of a pale color, but more commonly red; except that their itching causes the child considerable annoyance at times, they are by no means very troublesome or dangerous; of themselves, they are of little consequence, but, as symptomatic of some internal disturbance, they demand attention. When they appear, the action of the bowels should be carefully watched, and aperients administered if necessary. For the eruption, tepid baths, about twice a week, should be resorted to.

MILK CRUST.

The treatment of this is the same with the treatment of nearly all the skin-diseases that occur in childhood, especially during the period of dentition, and seem to be intimately connected with the disordered state of the bowels, which generally prevails at that period of increased irritability of the system. The general *treatment* consists in correcting the irritable state of the stomach, and clearing the alimentary canal of crude, undigested matter; a powder like the following will best effect this with children:

Gray powder,	12 grains.
Antimonial powder,	6 grains.
Sesquicarbonate of soda, rhubarb, and cinnamon-powder, each,	$\frac{1}{2}$ a drachm.

Divide into six powders and take one every other night; if for a very young child, half the strength will do.

The local *treatment* will be the application of ointment of zinc, acetate of lead or tar with sulphur; should it prove obstinate, apply, morning and night, ointment of nitrate of silver, diluted with three times its weight of lard. The following wash is effective:

Solution of the subacetate of lead,	$1\frac{1}{2}$ drachms.
Hydrocyanic acid,	2 drachms.
Distilled water,	6 ounces.

Much depends upon diet (nothing crude or indigestible should be taken to irritate the system), and much also on cleanliness; soap and warm water should be frequently used, and the patient should take regular and gentle exercise; if weak, he should have nutritious, although not rich food. These are generally tedious cases, and therefore immediate success must not be looked for.

CHOLERA INFANTUM.

This is a disease almost peculiar to the climate of the United States, and limited very much to the middle and Southern States. Children, in other countries, are liable during dentition, or from other causes, to various affections of the alimentary canal, all of which differ from this. The exciting causes are, improprieties in diet and clothing; and it is, likewise, very often aggravated by teething, worms, by premature weaning, and by a variety of adventitious circumstances.

Cholera infantum makes its approach in different ways. In some instances it comes on as a simple diarrhœa, though the stomach is also very apt to be affected; and in its more violent forms there are vomitings and purgings, attended by no considerable spasmodic uneasiness. In its ordinary forms, the fever, which soon supervenes, is of an irregular, remittent character, highest in the evening. The pulse is usually small, quick, and feeble, or irritated and corded, but rarely full, strong, or voluminous. Determinations to the brain are common, or, at least, this organ seems early to be affected sympathetically, as is manifested by a tendency to stupor or delirium, or, sometimes even frenzy. The eyes denote this cerebral affection: they are either fierce or languid in expression, and, when the patient sleeps, are half closed. Thirst is intense, and for a time really unquenchable—cold water is clamorously demanded, but, if swallowed, is immediately rejected. An unequal distribution of temperature commonly exists; the head and region of the stomach and bowels being hot, while the extremities are cold.

The appearances of the evacuations from the bowels are various. The natural fæces are mostly retained, though occasionally small lumps may be found involved in the other discharges. These are sometimes thin and watery, and at other times thicker and more tenacious, consisting chiefly of slime, or mucus occasionally tinged with blood. The color may be green, or yellow, or white, or brown, and they may be inodorous or exceedingly offensive. Commonly, however, the smell is that of sourness or of putridity. The irritability of the alimentary canal is sometimes so great, that the ingesta pass off unaltered.

The child, at first, becomes pallid, and the flesh flabby, and so completely is the fat ultimately absorbed, that the integuments hang in folds, and, in those parts on which the body rests, livid spots appear, followed by ulcerations. The skin on the forehead is tight, as if bound to the bone, the eyes are sunk, the cheeks fall in, the nose is sharp, and the lips are shrivelled. The belly becomes tumid

from flatulence, the feet still more frequently are œdematous, aphthæ appear; the mind and the senses, which hitherto may not have been impaired, are now obtuse, or so entirely lost that the child lies unmoved by ordinary excitements, and will even allow flies to collect on the face without being irritated or disturbed. This form of the disease will sometimes continue for five or six weeks. But, as death approaches, a gradual aggravation of symptoms takes place, and there is one which seems always to indicate a fatal result. It is a crystalline eruption upon the chest, of watery vesicles of a minute size, as if a vast collection of vesicles were produced by flinging an equal number of very minute drops or particles of boiling water, and each particle caused a blister.

There is another symptom which attends the last stage of this complaint, which is more common, but of not less fatal import, which is the thrusting of the fingers, nay, almost the hand, into the back part of the mouth, as if desirous of removing something from the throat. The popular opinion is, that there is a worm irritating the back part of the fauces. And we may mention another, which we do not remember to have seen noticed, which is, the escape of a live worm or worms in the chronic stage of this affliction. If the worm come away dead, there is nothing in the circumstance; but, if alive, it is a bad sign.

The symptoms of this disease are so peculiar, and so well defined in the genuine forms, that it will always be recognized without difficulty. And, where it imitates other affections, as cholera morbus, or dysentery, or diarrhœa, it may be considered as essentially such, and requires no difference of treatment.

The prognosis is far more difficult, since death sometimes happens most unexpectedly, and recoveries take place in a state of things apparently desperate.

TREATMENT.—The disease, as already stated, usually commences with a very disordered state of the alimentary canal, and it seems to be admitted that our earliest endeavors are to be directed to the evacuation of the stomach and bowels. As regards, however, the precise course to be pursued, to effect this purpose, there is not the same unanimity of opinion. Generally purgatives are employed in preference to emetics, and especially castor-oil. Cases of a mild nature may, undoubtedly, be treated in this way, and particularly if laudanum be occasionally added, where there is little or no fever. But, in the more violent forms of the disease, attended by vomiting, it will be impossible to get such medicines to be retained. It is, therefore, necessary that we attempt to allay the irritability of the stomach. For this purpose there is nothing so certain or so prompt

as an injection of a gill of warm water, in which is dissolved a large teaspoonful of common salt; this is for a child of a year old and upward, proportionably less for younger. And, however frequent the discharges may be per anum, it must not be regarded; the injection must be given. If it operate immediately, and bring with it a faecal or bilious discharge, the stomach becomes almost immediately quieted, and it may then be repeated only whenever the vomiting may be severe. Should it not bring any thing off, it must be repeated, and an attempt made to force it high into the bowels, or, should the vomiting not cease, we must again have recourse to it.

This repetition of the injection will either procure the discharge required, or it will produce a most salutary irritation of the rectum, on which its chief efficacy depends. We should wish this fact to be remembered, for a common injection of molasses, oil, and water, will do little or no good, though it may procure a stool, as it lacks the stimulating ingredient, the salt, on which its virtue depends. So decided and effective is this simple plan, that we have a hundred times seen it relieve entirely, almost without the aid of any other remedy.

The great object in cholera infantum is to tranquillize the stomach. If the disease have been provoked by any irritating matter in the stomach itself, it should be our first endeavor to remove it, by encouraging the puking by draughts of warm water, or even cold water, where the warm will not be taken, until no foreign substance appears in the matter thrown up, but do not administer an emetic; for, so long as Nature continues her efforts to dislodge the offensive substance, it cannot be required, as she will certainly succeed if she be aided by warm water.

When this complaint attacks very young children, nearly the same plan should be pursued, that is, an injection of the same materials must be given, of nearly the same strength, but of less bulk, and this repeated when necessary; or, should the first not succeed in allaying the irritation of the stomach, it should be repeated in half an hour. A teaspoonful of strong coffee, without sugar or milk, every fifteen minutes, should be given, especially to very young children, but all ages would profit by it in larger doses.

In the commencement of this disease the temporizing remedies, as the alkalies, the absorbents, or external irritants, are of not the smallest service. At this time also, discard all strong-smelling substances from the room, and especially from the stomach within, or the belly without, as mint, spices, brandy, gin, etc.; they are extremely offensive through the medium of the olfactory nerves.

If the stomach have not been tranquillized by the injection, or the

strong coffee, immediately commence with minute doses of calomel:

Calomel, 3 grains.

White sugar, 6 grains.

Mix, and make into twelve powders.

One of these powders is thrown dry into the child's mouth every hour, until the bowels are decidedly operated on by them; this may be known by the stools being more copious, less frequent, and of a dark-green color, with a tenacious slime of the same, or nearly the same tone of color. When this change is observed, the powders are given much less frequently, say, once in two, three, or four hours, as the symptoms may have abated or proved refractory. After the bowels have been well evacuated, give an injection with laudanum proportioned to the age of the child, provided there is not too much fever. With this given in the evening, the child may rest at night.

Should the symptoms continue, renew the treatment of the previous day, until similar effects be produced, and the laudanum-injection at night; treat pretty much after this plan the first or acute form of the disease. If much fever attend, with great gastric distress, decided advantage may follow the application of leeches over the region of the stomach.

Should irritation of stomach continue, and the legs and feet become cold, much good is derived from having the legs rubbed with mustard and warm vinegar, or Cayenne pepper and warm brandy, until the action of the skin be excited. But, from what has been said, it will appear that the chief reliance is upon the use of calomel. Though some give this article in greater quantities, the minute doses directed above will be found sufficient to quiet the irritation of the stomach and bowels, and to make a decided impression on the hepatic circulation, to invigorate or calm its actions, and thus restore the equilibrium in the distribution of the blood, which is essential to the performance of its natural functions.

Having thoroughly evacuated the intestines and reëstablished healthy secretions, we are to desist from purges; we should be content with keeping the bowels in a soluble state only, unless there is evidence of reaccumulations of bilious and fouler contents, or of hepatic torpor and congestion, when the same course is to be renewed. But, if irritation be excessive, and, as usual, productive of frequent and painful discharges, we may, with much advantage, administer anodyne injections three or four times in the course of the twenty-four hours, after having applied a few leeches to the region of the stomach. These remedies will, in most cases, certainly calm the intestinal canal; and, as soon as this happens, the acrid dis-

charges, together with the other symptoms, very generally cease to be troublesome. Yet it will occasionally be necessary to administer a mild purgative, to remove oppressive accumulations when they manifestly exist; for this purpose castor-oil is best.

In addition to what has already been advised for the management of this disease, be attentive to the means calculated to make a direct impression on the skin. For this purpose the occasional use of the warm bath is highly important. The effects of the bath are not lasting, and hence it is required to be repeated daily, or even oftener. It may be rendered more effectual where there is much cutaneous insensibility, by adding to it salt, mustard, or brandy, and, upon coming out, to employ frictions, etc.

This plan, however, proving unsuccessful, it must be intermitted, and, the bowels continuing highly irritated, with bloody evacuations, we may try the oleaginous mixture, consisting of castor-oil, gum-arabic, and laudanum; or what, perhaps, is still better, melted butter, or a union of sugar of lead, ipecacuanha, and opium. The lead here is occasionally very efficacious.

In the course of a few days in some instances, and in others a week or more, the disease passes into the nature of diarrhœa, which, however, is attended by a slight degree of tormina and tenesmus. It is also usual, at this time, to find the stomach greatly debilitated, with a loss of the power of digestion, and so irritable as hardly to retain any description of nourishment. At this time also the stools are apt to become very watery and green, manifesting the predominance of acid. The remedies proper, under such circumstances, consist chiefly of the cretaceous and alkaline preparations, variously combined. They may be prescribed as follows:

Prepared chalk,	. . . . .	1½ drachms.
Gum-arabic,	. . . . .	1 drachm.
White sugar,	. . . . .	1 drachm.
Laudanum,	. . . . .	10 drops.
Water,	. . . . .	3 ounces.

Mix. Give a tablespoonful, or less, adapting the dose to the age, and according to the quantity of laudanum.

Or make the same mixture with thirty grains of carbonate of soda, instead of the above quantity of prepared chalk.

A drop of the oil of cinnamon may be advantageously added sometimes to either form of the mixture. Lime-water and milk may be also usefully employed.

At this period of the disease preparations of rhubarb are sometimes resorted to with advantage. The spiced or simple syrup of rhubarb may be given, combined with small doses of laudanum. In the use of these preparations the dose is to be small, and repeated

at stated intervals, so as to attain rather the tonic or astringent than the purgative effect of this medicine.

As the disease advances it loses most or all of its acute or painful symptoms, and becomes a colliquative diarrhœa, and so profuse as to produce from ten to twenty stools in the twenty-four hours.

The treatment of this case is similar to that of chronic diarrhœa; combinations of chalk, with the tincture of kino, or with an infusion of galls and laudanum, are worthy of confidence. The columbo in infusion has much reputation. An infusion of logwood has also been employed. The decoction of pomegranate bark, or flowers, is said to be of great service. The dose of each of these preparations is nearly the same—about a dessert-spoonful to children above a year old, and less for a younger. A strong infusion of the dew or blackberry root is said by many to be useful.

Even here, however, calomel is serviceable, when there are marks of hepatic congestion, or want of bilious discharges, or the presence of vitiated humors. Exactly under similar circumstances, and especially if the mucous tissue of the bowels be much disordered, as is manifested by the loaded tongue and slimy stools, the spirit of turpentine has been found highly beneficial, and has succeeded when all hope had been abandoned. The dose is from five to twenty drops three or four times a day in sweetened cold water. The occasional use of laudanum, when there is pain, is absolutely necessary; a flannel roller around the abdomen is sometimes productive of signal benefit.

This brings us to the consideration of regimen. In the commencement of the disease the diet should consist exclusively of breast-milk, which is of such importance, that a nurse ought to be procured when the child has been weaned. It will of itself sometimes cure the disease. Caution, however, is necessary even here, as the child, from excessive thirst, may demand the breast too frequently, and thus overload its stomach; the child, therefore, must not be permitted to suck too much or too often. If thirst be importunate, cold gum-arabic water may be given in small quantities frequently, instead of the often nursing. But, if the child will not take the breast, let it be fed on diluted sweetened milk, or barley or rice-water and milk, or gum-arabic tea. These will serve also for drink. But balm or marsh-mallows tea, soda-water, and burned bread and water, may also be directed for this purpose. In the advanced stages the farinaceous articles may be employed, as very thin arrow-root, tapioca, sago, rice, or boiled flour. Extreme debility of the stomach and bowels existing, and no fever present, a little ham or salt fish may be allowed.

Yet, the only remedy which is sovereign, and nearly unfailing, is a change of air. As long as the child remains exposed to the operation of the causes of the disease, we may palliate or suspend its career, but can hardly ever make a radical cure; relapse upon relapse takes place, until the strength is finally extinguished.

Great benefit is gained by a removal from the city to the country, in every stage of the complaint. There is nothing so effectual. As soon, almost, as the child gets into the country air, there is a change. Where we cannot have a country residence entirely, it will be useful to ride out daily, or twice a day. Crossing the river is often found highly beneficial.

To prevent the disease :

1. Never permit a delicate child to be weaned within the year, when practicable to prevent it. No food is so salutary as the natural milk. As respects this complaint, weaning predisposes to its attacks.

2. Direct the wearing of flannel next to the skin, and worsted stockings. The great benefit of this system is experienced by grown persons prone to intestinal complaints, and its utility is no less in children.

3. Duly regulate the diet, let an excess of fruit be avoided, and absolutely abstain from unripe or unwholesome kinds. The proper food of a child is, substantially, milk with farinaceous matter, such as arrow-root, rice biscuits, etc. After a few months, provided it has teeth, it will be useful to accustom it to a little animal food. It strengthens the powers of digestion and the general tone of the alimentary canal.

4. During dentition let the gums be frequently examined, and, if any appearance of swelling or inflammation exist in them, they must be lanced. Dentition, during hot weather, is but too apt to excite cholera, and if the complaint exist it never fails to aggravate it.

5. Let the child, when practicable, be removed to the country, but not too early in the season.

PNEUMONIA, PLEURISY, AND BRONCHITIS.

These inflammations of the chest occur in children of all ages, and are all very dangerous. Commonly, there are but few signs to direct attention to the chest, except in bronchitis, where there is always cough, and thus the other two are frequently mistaken for fevers. When children have taken cold, and are made very ill by it, and when a fever comes on them every afternoon, suspect one or

another of the above diseases. If there is bronchitis, there will be cough to distinguish it. In pneumonia, also, there will be cough, but it is not so prominent a feature. The vibration of the chest during coughing or crying, observed by placing the palm against the ribs, is an important sign. In pleurisy, children complain of the pain in the side, if they are old enough. Younger ones lie very quiet and dislike to be moved, because of the pain that motion causes. Pleurisy gives many symptoms that resemble those of disease of the brain, but the disease of the brain it resembles will not come on so suddenly if the child was previously well.

For these diseases the treatment is essentially the same. Cover the chest with onion draughts or poultices of linseed-meal, keep the bowels regular, and give diaphoretics, and, in the case of bronchitis, expectorants also. So soon as the symptoms peculiar to the disease appear to yield, give tonics.

Begin the treatment with a dose of calomel and Dover's powder adapted to the age. For a child of one year, a grain of calomel and quarter of a grain of Dover's powder. Double this dose for a child of three years. The spiritus mindereri is an efficient diaphoretic, but the best sedative diaphoretic and expectorant together is tartar-emetic; give it in exceedingly small doses, say the sixtieth part of a grain. Dissolve one grain in an ounce of water, and give six to twelve drops once in two or three hours. If it vomits a little, all the better, but do not push the vomiting-dose.

For particular account of some formidable diseases of children, see, on other pages, Croup, Hydrocephalus, Worms, Chorea, Whooping-cough, Measles, Scarlet Fever, Rickets, Convulsions, Vaccination, etc.

MATERIA MEDICA.

EMETICS.

THESE are medicines capable of exciting vomiting, and this independently of any effort of the stomach arising from quantity or flavor. Susceptibility to the action of this useful class of remedies varies greatly in different individuals, and is considerably modified by the nature of the disease for which they may be administered. When there is any morbid affection depending on or in connection with overdistention of the stomach, emetics are very useful, as the vomiting which they excite generally affords speedy relief; thus, in impaired appetite, excess of acidity, intoxication, and poison, they are constantly resorted to, as well as in jaundice arising from obstruction of the biliary ducts; in catarrh, and phthisis, and dysentery, where there is much mucus of which it is desirable to relieve the passages. They are also useful in nauseating doses in dropsies, hæmorrhages, constriction, and in any cases in which it is desirable to relax the muscular or other tissues. Emetics are dangerous or hurtful when there is much debility, as their frequent use lowers the tone of the system; also where there is a determination of blood to the head, especially in patients of plethoric habit, in visceral inflammation, the advanced stages of pregnancy, hernia, and prolapsus uteri. An emetic should always be administered in a fluid form, and its operation will be promoted by drinking some tepid diluent, such as warm water, or bitter infusion, such as chamomile-tea.

The principal emetics given to promote full and free vomiting are, ipecacuanha-powder, dose, ten to thirty grains; tartarized antimony, of which from one-quarter of a grain to two grains may be given; sulphate of copper, one-quarter to five grains; sulphate of zinc, ten to thirty grains; the latter is perhaps best in cases of poisoning, and it should be repeated every quarter of an hour, until the

full effect is produced. If neither of the above can be readily obtained, a teaspoonful of strong mustard may be mixed in warm water and swallowed, or a tablespoonful of common salt; irritating the fauces with a feather, or putting the finger far down the throat, will often excite vomiting. It should be borne in mind that mineral act more quickly than vegetable emetics, and that the action of either will be more rapid in proportion to the emptiness of the stomach.

In the chest diseases of children, where there is much mucus without the power to expectorate, emetics are especially serviceable, and they may be given frequently; for very young children ipecacuanha-syrup is the best form of administration, from ten drops to thirty, or a teaspoonful, according to age. In some cases of incipient disease, where there are coldness of the skin, and other symptoms of depression, a full dose of ipecacuanha, with about six grains of carbonate of ammonia, will have the effect of arousing the system. Cramps and spasmodic diseases are often greatly relieved by emetics, and asthma when nothing else will afford relief.

CATHARTICS.

These may be either *laxative*, *purgative*, or *drastic*, according to their power of accelerating or increasing the evacuations from the bowels; we append a list of those most used, with their doses: aloes, from five to fifteen grains; colocynth-powder, two to six grains; elaterium (or wild-cucumber), one-half to three grains; gamboge, five to twenty grains; hedge hyssop, from ten to thirty grains; jalap, ten to twenty-five grains; scammony, ten grains; submuriate of mercury (calomel), one to twelve grains; castor-oil, one half to one ounce; rhubarb, ten to twenty grains; senna, twenty to thirty grains; extract of dandelion, three to ten grains; carbonate of magnesia, one-half to two drachms; sulphate of magnesia (Epsom salts), one-half to two ounces; muriate of soda (common salt), ten to sixty grains; tartrate of potash, two to eight drachms; supertartrate (cream of tartar), one to three drachms; sulphate, one to two drachms; supersulphate (polychrist salt), one to six scruples; potassio-tartrate of soda (Rochelle salt), one to four drachms; Castile soap, one to two drachms; sea water, one-half pint.

DIURETICS.

Medicines which augment the urinary discharge; this effect will be produced by any substance which stimulates the secreting vessels of the kidneys. All the saline diuretics act in this way; they pass

into the circulation, and appear to exert a specific action upon these vessels. The free drinking of mild diluents will also have this effect, while the application of external heat to the body will exert a contrary influence by exciting perspiration, which is an increased cutaneous secretion. Diuretics are mainly adjuncts. Thus, in dropsy, in which they are chiefly employed, if perfectly successful, they do but remove for a time a portion of the effusive fluid, which quickly collects again: they are sometimes useful in calculous affections, also in gonorrhœa, and they have a tendency to check profuse perspiration, and diminish plethora; but their frequent and constant use is very weakening to the system. The medicines of this class chiefly used are broom (*genista*), the tops in powder, dose, one to three scruples; bitter-sweet (*dulcamara*), same dose; dandelion, extract ten grains to one-half a drachm; foxglove (*digitalis*), leaves and seed, one-half to three grains; juniper berries and tops, one to three scruples; meadow saffron (*colchicum*), root and seed, one-half to three grains; sarsaparilla, root powdered, one to two drachms; snake-root (*seneka*), one to three scruples; squills, root powdered, one to three grains; Spanish flies (*cantharides*), one-half to three grains; potash, acetate of, one to three scruples; carbonate, ten to thirty grains; nitrate, five to ten grains; subcarbonate, ten to three grains; supertartrate (cream of tartar), two drachms to one ounce; spirits of nitric ether (sweet spirits of nitre), one-half of a drachm to two drachms; tar-water, one-quarter to one-half a pint; turpentine, five drops to one-half a drachm; gin; common and chalybeate waters, etc. Among the wild plants possessing diuretic properties, the broom and dandelion may be mentioned as the most common, and therefore accessible to persons in the country. (For full account of the former, see *dandelion*; of the latter, *genista*.) Gin, spirits of nitre, and turpentine, may always be readily procured, and are as certain in their operation as any; but they should not be taken where there is much tendency to irritation.

DIAPHORETICS.

These are medicines which increase the natural exhalations of the skin; if they are not so powerful as to occasion actual perspiration, they are called *sudorifics*. The difference in the operation of these two classes of remedies is not in kind, but in degree only. Diaphoretics may be divided into five orders, viz.:

1. *Pungent*, as, the volatile salts and essential oils, which are more especially adapted for aged persons, on whom other diaphoretics have little effect.

2. *Calefacient*, which excite a degree of warmth in the parts to which they are applied, and, like the last, are given where the circulation is low and languid. *Serpentaria* and *guaiacum* may be mentioned as common examples of this order.

3. *Stimulant*, best fitted for vigorous and plethoric habits ; such are the preparations of antimony and mercury.

4. *Antispasmodic*, such as camphor, musk, and opium, given to promote a diaphoresis when the circulation is too full and rapid.

5. *Diluent*, such as water, barley-water, thin gruel, whey, etc. given when it is desirable to promote perspiration, and so check the course of active diseases.

The following are among the principal diaphoretics : Antimony, oxide of, dose, one grain to ten ; powder of, five to twenty grains ; tartarized, one-eighth to one grain. Camphor, five to twenty grains ; Dover's powder, five to twenty grains ; guaiacum, resin, or wood, ten to thirty grains ; acetate of ammonia, liquor of, one-half to one drachm ; carbonate of ammonia, liquor of, one-half to one drachm ; nitrate of potash, five to ten grains ; spirit of ammonia, one-half to one drachm ; nitric ether, ten to twenty drops, etc.

The efficacy of diaphoretics is much increased by combinations with each other.

EXPECTORANTS.

These are medicines for promoting the discharge of mucous or other matters from the trachea and its branches. Expectorant medicines may generally be arranged under the following four heads :

1. *Nauseating*, as ammoniacum, garlic, and squills, which are most suitable for the aged and phlegmatic.

2. *Stimulating*, as horehound, which is best adapted for the young and irritable.

3. *Antispasmodic*, as blistering substances, hot fomentations, foot-baths, etc., most suitable for the plethoric and irritable, and those liable to spasmodic affections.

4. *Irritating*, as fumes of tobacco and acrid vapors, adapted for those past the period of growth, and those who have evident marks of torpor, in the lungs in particular, or in the system generally.

As expectorant medicines, we chiefly use ammoniacum gum, dose ten to thirty grains ; antimony, various preparations, but chiefly the wine, dose five to ten minims, with other medicines ; balsam of tolu, five to ten drops on sugar ; benzoin, compound tincture, about half a drachm ; dulcamara, decoction, one drachm to an ounce.

A twofold action may be traced in these remedies: first, they remove the constriction of the vessels by the relaxation caused by the nausea they excite; and, by their stimulating after-action, they restore the natural secretions, and so change an unhealthy for a healthy condition of the vessels.

The following formula of expectorant medicines may be recommended as safe and efficacious. For mixture—

Take of ipecacuanha-wine,	2 drachms.
Syrup of tolu,	4 drachms.
Compound tragacanth-powder,	2 drachms.
Water sufficient to make six ounces.	

For a child, one, for a grown person, two, tablespoonfuls every four hours.

In the latter case, two drachms of compound tincture of camphor may be added to the mixture, and two drachms of vinegar of squills if the expectoration is difficult.

For pills—

Take of compound squill-pill,	1 drachm.
Compound ipecacuanha-powder,	1 drachm.

Mix, and make into twenty-four pills; one every four or six hours.

For an electuary, rub down one ounce of spermaceti, with a few drops of spirits of wine; mix with an equal quantity of powdered gum-acacia; then add common vinegar, syrup of poppies, and almond-oil, of each, half an ounce. Put the whole into a gallipot, and give a teaspoonful when the cough is troublesome; excellent for children, who will commonly take it eagerly on account of its sweetness.

All emetics are expectorants when given in smaller than the emetic doses, as lobelia, antimony, etc.

EMMENAGOGUES.

These are medicines which possess the power of promoting the monthly discharge, which is so essential to a state of health in certain conditions of the female system. They may be placed under four distinct heads, viz.:

1. *Stimulating*, as antimonial and mercurial preparations, which are chiefly given to young persons, and those who manifest peculiar insensibility of the uterus.

2. *Irritant*, as aloes, savine, and Spanish flies, most useful in torpid and chlorotic habits.

3. *Tonic*, as preparations of iron, cold baths, and exercise, best suited for lax and phlegmatic habits.

4. *Antispasmodic*, as assafœtida, castor, and pediluvia. Weak, delicate, and irritable constitutions, are those for which these are best adapted.

Some of these medicines appear to act upon the womb by stimulating the surrounding organs; others by their action on the nervous system; and others, again, by their tonic influence upon the system at large. The first-named action is that of aloes; the second, assafœtida; and the third, iron.

The emmenagogues which are principally used are: aloes, five to fifteen grains; ammonia (carbonate and subcarbonate), dose, five to twenty grains; aristolochia, ten to thirty grains; cantharides, one to two grains; electricity; ergot of rye, five to six grains; elemigum, ten to thirty grains; galbanum, ten to thirty grains; iron, rust of, tartarized and vitriolized, ten to thirty grains; iron, sulphate of, one to two grains; iron, citrate of, five to ten grains; madder, one-half drachm to a drachm; myrrh, ten grains to one drachm; opoponax, ten to thirty grains; and savine, ten to thirty grains.

ANTISPASMODICS.

As spasms may arise from a variety of causes, so must the remedies for them be numerous and diverse in character. Thus, narcotics, sedatives, stimulants, nauseants, aperients, stomachics, tonics, blood-letting, the hot bath, and application of dry heat, all, at different times, come under the above denomination; but, as the immediate cause of spasms is commonly wind in the internal cavities or passages of the body, those medicines which have a direct action thereon are especially antispasmodic: such are assafœtida, valerian, galbanum, ether, essential oils of mint, anise, and dill, ginger, spirits of ammonia, and brandy.

ANTHELMINTICS.

Medicines which cause the expulsion of worms from the stomach and intestines. These mostly act mechanically, dislodging the worms by the roughness of their particles, or by their cathartic operation. Some appear to owe this beneficial action wholly to their bitter properties, which prove noxious to the creatures, or by restoring the tone of the stomach and removing that debility of the digestive organs, which prevented the proper assimilation of food and conduced to the generation of the animals. Anthelmintics are best administered upon an empty stomach; hence it is common to prepare the way for them by an emetic. The principal are pink-root, male fern, turpentine, kousso, pumpkin-seed, and santonin.

ALTERATIVES.

A class of medicines whose object is to effect a gradual change in the state and condition of the functions, secretions, etc., and establish the healthy habit, which has somehow become deranged.

An alterative medicine, then, is supposed to be one which produces a new effect, and thus alters or diverts the attention of the system (if we may so speak) from the original disease; it is generally directed, or intended to act, upon the immediate seat of mischief, as the liver, the blood, etc. Small doses and frequent is the general rule with regard to the administration of alteratives, and in this way some of our most active and even poisonous drugs are employed to produce very beneficial results. It is properly through the medium of the excretions and secretions that alteratives act. They are taken from all classes of medicines, mineral as well as vegetable; thus, mercury and ipecacuanha, the former commonly combined with chalk, as in the *hydrargyri cum creta* of the pharmacopœia, and the latter with opium and an alkali, as in the *pulvis ipecac. comp.*, or Dover's powders, both of which see.

TONICS.

Medicines which restore the tension and vigor of the muscular fibre when it is weakened and relaxed. They may be divided into classes, as thus: those which act *indirectly* by passing into the blood, and exerting their influence through the circulation. These are the bitter tonics, such as calumba, chamomile, cinchona, gentian, quassia, quinine, salicine, etc. The *direct* tonics include iron in its various forms, the mineral and vegetable acids. Among non-medical tonics may be named, cold as variously applied, exercise, a pure and bracing air, and mental emotions of a pleasant and stimulating character. See also heads of the several diseases, among whose remedies tonics have a prominent place. *Tonicity* is a term sometimes used to denote strength and elasticity of the muscular fibre.

ANODYNES.

Medicines which assuage pain. These medicines act by diminishing sensibility. The following is a list of the medicines of this class which are principally used, with their doses; a full account of their nature and uses will be found under their several heads: camphor, five to twenty grains; compound spirits of sulphuric ether, one-half a drachm to two drachms; extract of aconite, one-quarter

to three-quarters of a grain; of belladonna, one-half to two grains; of conium, three to twenty grains; of digitalis, one-half to one grain; of hyoscyamus, two to ten grains; of lettuce, three to ten grains; of hop, five grains to one drachm; of opium, one-half to five grains; of poppy, two to twenty grains; of stramonium, two to ten grains; morphine, acetate and muriate of, from one-quarter to one-half a grain. Pills of conium, of opium, of ipecacuanha with opium, of soap with opium, and several other pills into the composition of which opiates enter, may be included; the dose is generally from five to ten grains. Powders of burnt hartshorn, and of chalk with opium; doses of the former, five to twenty grains, of the latter, one to two scruples. Compound powder of ipecacuanha, commonly called Dover's powder, five to twenty grains, and tobacco, dried leaves, one-half a grain to one grain, seldom used. For children, syrup of poppies and Godfrey's cordial are much used, the latter especially to a very mischievous extent. Opiates should always be given with great caution, to the young especially; in the earlier stages of life they are seldom really needed. They are a great blessing when properly used, but too often turned by abuse into a curse, as the examples of excessive tobacco-smokers and opium-eaters frequently prove. In many acute and some chronic forms of disease, when the frame is racked with pain, or the brain excited to unnatural activity, it is often necessary to administer anodynes, and their soothing effect is felt like a foretaste of heaven. To the aged, who are weary and yet wakeful, they are sometimes a balm and a consolation, which it would be cruel to deny them; but, as we said before, the child seldom requires them, and, if given at all, it should be only in the mildest form, unless under the direction of the medical adviser.

NARCOTICS.

Medicines which induce sleep or stupor. They are the same generally as the sedatives, but the action of the medicine is pushed further. The following are the principal narcotics which are used in medical practice: belladonna, camphor, conium (hemlock), hyoscyamus (henbane), Indian hemp, lactucarium (lettuce), morphia, opium, poppy, stramonium. They are all dangerous medicines, for one who is not well acquainted with their uses and effects, to meddle with; a reference to their several heads will show in what cases and how they may be given.

The *Narcotico-Irritants* differ from the simple narcotics in having a direct action on the spinal marrow and nerves, as indicated by paralysis and convulsions; they also affect both the brain and ali-

mentary canal; the chief poisons of this class are—*cocculus indicus*, *colchicum* or meadow saffron, *digitalis* or foxglove, *hellebore*, *nux vomica*, and *strychnine*; the poisonous mushrooms, *aconite*, *belladonna*, and *conium*, ought also to be included.

The simple *Narcotic Poisons* are chiefly opium and its preparations, alcohol and ether, although under this denomination all those narcotics previously mentioned might be classed. (For symptoms of poisoning by these, and modes of treatment, see *Poisons*.)

STIMULANTS.

Medicines which quicken or augment the functions of the bodily organs. They may be divided into two classes: 1. Those which produce a general stimulant effect upon the system, *Antispasmodics*, *Astringents*, *Narcotics*, and *Tonics* (all of which see); 2. Those which produce an effect upon particular parts of the system: these have often been called *vacuants*, because they occasion a greater secretion of the organs on which they act; these will be found under the several heads of *Emetics*, *Emmenagogues*, *Epispastics*, *Errhines*, *Cathartics*, *Diaphoretics*, *Diuretics*, etc.

Of the benefit of stimulants in certain cases and stages of disease, and therefore the propriety of their administration, there can be no question, although some have expressed doubts upon the subject. Those only who have had to deal with cases of low typhoid fevers, and utter prostration and exhaustion of nervous power, can rightly estimate their value.

ANTACIDS.

Medicines which are intended to correct acidity of the stomach and bowels; their action is purely chemical; they combine with the acid and neutralize it, but do nothing to prevent its regeneration; therefore they are simply palliatives, and cannot be depended upon for restoring the tone of the impaired organs, whose powers a long continuance of them is apt to enfeeble. *Ammonia*, *chalk*, *lime*, and all cretaceous matter, *magnesia*, and the *alkalies*, *potash* and *soda*, are the chief antacids, or absorbents. There are many forms of preparations, but the action is pretty uniform. *Ammonia*, in its various combinations, is useful where acidity in the stomach exists with flatulency and tendency to cramp or colic. *Magnesia* and the preparations of *chalk* or *lime* are best when acid is present in the bowels, causing loose evacuations, griping-pains, etc., and this because they pass down the alimentary canal, and into the seat of mischief, without losing their absorbent powers. Where an alkaline

test shows acidity in the urine, preparations of potash are most suitable for administration, as they are more readily soluble than soda.

ASTRINGENTS.

Remedies which act by contracting the animal fibres, and rendering the solids denser and firmer; hence, by causing greater compression of the nervous fibres, they lessen morbid sensibility or irritability, and thus serve to diminish excessive discharges, such as fluxes, hæmorrhages, diarrhœa, etc. (which see).

The following is an alphabetical list of the chief astringents used, with their respective doses:

Acid, sulphuric, dilute, . . .	dose 10	drops	to 1	drachm.
“ gallic,	“ 5	grains	to 10	grains.
Alum	“ 10	grains	to 1	scruple.
“ dried,	“ 5	grains	to 1	scruple.
Arsenic, oxide of,	“ $\frac{1}{10}$	grain	to $\frac{1}{4}$	grain.
Bistort, root of,	“ 10	grains	to 1	drachm.
Catechu,	“ 10	grains	to 1	scruple.
Copper, sulphate of,	“ $\frac{1}{4}$	grain	to 5	grains.
Galls,	“ 2	grains	to 10	grains.
“ tincture of,	“ 1	drachm	to 2	drachms.
Iron, sulphate of,	“ 1	grain	to 2	grains.
“ filings of,	“ 5	grains	to $1\frac{1}{2}$	drachms.
“ rust of,	“ 2	grains	to 10	grains.
“ muriated tincture of,	“ 10	drops	to 20	drops.
Kino, tincture of,	“ 10	drops	to 20	drops.
“ powder of,	“ 10	grains	to $\frac{1}{2}$	drachm.
Lead, superacetate of,	“ $\frac{1}{2}$	grain	to 2	grains.
Lime-water,	“ 2	ounces	to $\frac{1}{2}$	pint.
Logwood,	“ 1	scruple	to 1	drachm.
“ extract of,	“ 10	grains	to 1	drachm.
Pomegranate, flowers and bark,	“ 1	scruple	to 1	drachm.
Roses, red, the petals of,	“ 1	scruple	to 1	drachm.
“ damask,	“ 1	scruple	to 1	drachm.
Quicksilver, nitrate of,	“ $\frac{1}{8}$	grain	to 2	grains.
Sage, leaves of,	“ 10	grains	to 1	drachm.
Simarobar, bark of,	“ 1	grain	to $\frac{1}{2}$	drachm.
Saunders red, the wood,	“ 1	grain	to $\frac{1}{2}$	drachm.
Tannin,	“ 5	grains	to 10	grains.
Tormentil, the root,	“ 10	grains	to 1	drachm.
Whortleberry-leaves,	“ 10	grains	to 1	drachm.

The following may be quoted as good forms of administration and application in most cases where astringents are required :

For mixture—

Take of muriated tincture of iron,	2 drachms.
Pure water, or infusion of quassia,	12 ounces.

Two tablespoonfuls three times a day.

For pills—

Take superacetate of lead,	12 grains.
Opium,	4 grains.
Extract of hemlock or gentian (as the case may require),	2 scruples.

Make into twelve pills; one three times a day with a draught of vinegar and water.

For gargle—

Infusion of roses,	6 ounces.
Alum,	1 scruple.
Oxymel, or syrup,	6 drachms.

ESCHAROTICS.

These are substances employed to produce the above result, because they have the power of eroding or dissolving animal solids, which they do either by combining therewith, and forming a soft pulp, or by causing the elements to enter into new combinations, and so destroying their cohesion and altering their composition. Thus, their operation may in general be considered as purely chemical; produced in most cases by some peculiar affinity existing between them and the solids or fluids, with which they are brought into contact; so, nitrate of silver, one of our commonest escharotics, by the action of the muriatic acid contained in all animal fluids, is decomposed, and covers any part, to which it is applied, with a whitish film, which is, in fact, a muriate of silver. Escharotics differ greatly in the energy of their actions, some eroding merely the cuticle or external surface of the skin, as nitrate of silver and sulphate of copper; others, as caustic potash, and quick-lime, decomposing the animal matters to a considerable depth; with some, too, there is, besides the chemical, a specific action, not obtainable from others; of that class, arsenic may be named as an example.

We commonly find escharotics classed under two heads, viz., the Potential Cauterants, and the Actual Caustery, the former being, as before observed, chiefly chemical agents. Among those most

commonly employed to produce counter-irritation, or remove fungoid or morbid growths of any kind, are the strong mineral acids, such as sulphuric and nitric; pure alkalies, and some metallic salts, especially nitrate of silver. The actual cauterants, such as hot water or vapor, or heated metal, are used for their primary or secondary actions; the first being the immediate destruction of the part to which they are applied, and the second to stimulate and arouse the nervous energy of the system, so as to enable it the better to meet and combat any disease with which it may be attacked. Atony and laxity of the muscular system, neuralgic pains, and even paralysis, are sometimes materially relieved by these means.

DEMULCENTS.

Medicines which have softening and soothing properties, rendering them especially suitable for obviating the action of acrid and stimulant matters, not so much by correcting or changing their nature, as by involving them, or the delicate tissues exposed to their action, in a mild and viscid fluid. Their chief employment is in catarrh, diarrhœa, gonorrhœa, dysentery, gravel, stone, etc. They may generally be divided into two divisions, mucilages and expressed oils: in the first we have almonds, colt'sfoot, arabic and several other gums, linseeds, mallows, liquorice-root, barley, oats, and wheat, sago and starch. Among the latter are most European and many foreign oils, fat, and other animal substances, including hartshorn shavings, gelatine and isinglass, spermaceti and wax. The following is a pleasant and efficacious demulcent draught, suitable where there is fever:

Almond-mixture,	1 ounce.
Carbonate of potash,	10 grains.
Syrup of poppies,	1 drachm.
Mix, and add a tablespoonful of lemon-juice, or ten grains of citric acid, and drink while in a state of effervescence.	

As a form for a cough-mixture, easily prepared, take oil of almonds six drachms, liquor of potash one drachm, shake well and make up to eight ounces, with rose or plain water; sweeten with syrup of poppies and add paregoric-elixir two drachms, or tincture of squills, if required to be more expectorant. The best demulcent enema is made by dissolving six drachms of starch in half a pint of hot water; add one drachm of tincture of opium if necessary.

EPSOM SALTS (*Sulphate of Magnesia*).

This is perhaps the most generally used of all known purgatives—certainly of all those of a saline nature; yet considerable mischief undoubtedly results from its common and indiscriminate use; for, although it is well suited for persons of a full, plethoric habit, and is a most valuable medicine in many diseases—being tolerably certain in its action, griping but little, if at all, and producing free, watery discharges—yet it is too weakening to be taken frequently by those of delicate constitution, and especially when swallowed, as it most commonly is, in the form of a strong solution. The flavor being very nauseous, it is the great object, with those who are necessitated to take it, to make the dose of liquid as small as possible; but in this they greatly err; in too concentrated a form it induces a discharge of the serous, or watery portion of the blood, into the bowels, and thus seriously debilitates the system, besides causing a tendency to constipation, directly its action has ceased. From half a drachm to one drachm of these salts, dissolved in a tumbler of water and so taken, would have a better effect, and be safer in its operation, than five or six times the quantity in a wineglassful of the liquid; the drink is not pleasant, but it may be taken, and the best time is before breakfast in the morning. To correct any tendency to griping or flatulency, it is best to add something warm and aromatic; the following is a good form of preparation:

Take of Epsom salts,	1 ounce.
Sliced ginger-root,	2 drachms.
A few bruised cloves,	
Boiling water,	1 pint.
Let it stand two hours, then strain into a wine-bottle, and fill up with peppermint-water. Dose—a tumblerful every morning, fasting, while required.	

Persons suffering from habitual constipation will commonly find relief from this remedy, which, however, is scarcely fit for the weak and aged, for the reasons already stated. By persons of scrofulous habits, Epsom salts, in combination with iron and acid, may be taken with advantage, as thus:

Sulphate of magnesia,	6 drachms.
Sulphate of iron,	12 grains.
Diluted sulphuric acid,	1 drachm.
Plain or peppermint water,	12 ounces.
Mix, and take one tablespoonful three times a day.	

Perhaps the most agreeable form in which this salt can be administered is, dissolved in an infusion of roses; the mixture may be thus prepared :

Take of sulphate of magnesia,	1 ounce.
Red rose-leaves, dried,	3 drachms.
Boiling water,	1 pint.
Let it stand two hours, then strain and add	
Diluted sulphuric acid,	1½ drachms.
Lump-sugar,	6 drachms.

Dose—a wineglassful once or twice a day, or as often as required.

If there is great debility of the stomach, half a grain of sulphate of quinine may be added to each dose of either of the above mixtures which contain acid; besides acting as a tonic, this appears to increase the aperient property. One of the most convenient and best occasional purgatives in use is, the Epsom salts in combination with senna, a mixture generally known as the black draught.

We have already spoken of coffee as a good vehicle for the administration of Epsom salts. A simple infusion, however, of the berry will not develop the aroma sufficiently to hide the nauseous bitter of the sulphate, of which one ounce, with two and a half drachms of ground coffee, should be boiled in a pint of water for about two minutes in a glazed vessel: before straining, let the mixture stand for about ten minutes, then bottle and sweeten to taste; a wineglassful or more may be taken when required; this is a favorite formula with the French physicians.

One ounce of the sulphate of magnesia dissolved in a pint of warm water is a good injection for those troubled with ascarides or thread-worms: its utility in inflammatory diseases, in small and repeated doses, combined with acetate of ammonia and other febrifuges, is universally acknowledged; and its consumption among all classes of the community (especially the poorer ones) must be truly enormous. The small, pointed, transparent, colorless crystals of these salts very closely resemble those of oxalic acid—a most virulent poison; and fatal accidents have resulted from mistaking one for the other; there is, however, a very simple test—take a small crystal, and put it on the tongue: if it have an intensely acid and burning taste, it is not Epsom salts, which is simply disagreeable and slightly bitter.

SENNÆ.

This name is commonly applied to the dried leaflets of several species of cassia which are found chiefly in Africa and India. But that

which is considered as the officinal senna is the produce of the *Cassia lanceolata* and *C. obovata*.

This is commonly called Alexandrine senna, from the port at which it is shipped, but it is collected in the interior of Upper Egypt; it is commonly adulterated with the leaves of two or three other plants, which may be distinguished from it by their greater length and thickness, the absence of visible lateral nerves on the under side, and their lighter color; some of them by their downy surface, their unbranched lateral nerves running nearly in parallel lines, and by their being usually folded lengthways; this adulteration, which is always found more or less in the kind of senna here spoken of, is technically called *Argel*. The Tripoli senna, which is the produce of the *C. Æthiopica*, is said to be collected chiefly at Fezzan; it is smaller and more broken than the other kinds, the leaflets being more thin and fragile; they are naturally, too, of a more blunt rounded form, and as generally imported are much mixed with stalks and pieces of fibre. Indian senna is the produce of *C. elongata*; it comes mostly from Arabia, but is shipped at East Indian ports; it is distinguished from the other kinds by its long, narrow leaflets; it is considered the best kind.

The purgative properties of senna are well known, and it is the most commonly employed of all cathartics; it is sure in its operation, but rather heating, and apt to gripe and cause nausea; therefore, an aromatic should generally be given with it. It should not be administered when there are irritation and fever, nor during pregnancy, nor the existence of piles. It may be given to children and elderly persons quite safely, when a tolerably active purge is required, and it is well to combine a saline aperient with it, as in black draught. The powdered leaves are sometimes, but not often, administered; the dose varies from half a drachm to two drachms; the confection, a mild laxative, commonly called lenitive electuary, from one to four drachms; the syrup, a good preparation for young children, from one to two drachms; tincture, from one to four drachms; compound infusion, an excellent family medicine, from one to three ounces. It may be prepared as follows:

Senna-leaves,	4 drachms.
Raisins (stoned),	1 ounce.
Ginger (bruised),	2 drachms.
Boiling water,	1 pint.

Macerate four hours in a covered vessel, and strain.

A tablespoonful of brandy will add to its stomachic properties, and make it keep better; but, if for young children, this had better not be added. The infusion should be kept in a cool place.

SULPHUR OR BRIMSTONE.

This useful mineral, which, in one form or another, enters so largely into our medical formulary, is one of the most abundant constituents of the globe, being a constant element in most animal as well as vegetable substances, and existing in the form of metallic sulphurets, and in the combination of sulphuric acid with various bases, such as lime, magnesia, etc., almost everywhere. "The roll sulphur" is merely the mineral fused and cast into moulds; in "the flowers of sulphur," we have it as vaporized by heat and then condensed; this we call *sulphur sublimatum*; in "milk of sulphur," so called from its whiteness, it is levigated and washed; this is the *lac sulphuris* of the pharmacopœia, and is the best form for internal administration, being the most pure, and free from that strong odor which renders the use of brimstone so objectionable. That much of it when taken passes off by the skin in what is called insensible perspiration, we know by the blackening of a silver watch or coins, which a person taking it may have about him.

Sulphur acts upon the system as a laxative, and is commonly given as a purifier of the blood to children and scrofulous persons; combined with cream of tartar, and other mild purgatives, it is a good medicine for piles; as a deobstruent in affections of the liver, it is given in small doses with good effect; it also acts as a diaphoretic and alterative, and is very useful in skin-diseases, especially itch.

Sulphur, as an alterative, should be given in doses of from five to twenty grains three times a day; as a purgative, from one to three drachms. Of either of the alkaline sulphurets the dose is from two to ten grains. The milk of sulphur is best given in milk, and acts all the better mixed with an equal weight of magnesia; of this combination about a drachm is the maximum dose. The sulphuret of mercury with sulphur, prepared by rubbing together equal quantities of quicksilver and brimstone, was at one time a favorite medicine, much given as an anti-venereal, alterative, and anthelmintic, under the name of *Æthiop's mineral*; it is a most disagreeable form of preparation, being perfectly black, and is now nearly superseded by more active and agreeable forms; it is, however, useful, especially in scrofulous, glandular swellings; the dose is from five to thirty grains; treacle is the best vehicle of administration.

Sulphuret of carbon, or carburet of sulphur, as it is sometimes called, is a light, volatile fluid, very inflammable, and having a penetrating odor. It is a diffusible stimulant, diaphoretic, and emmenagogue, in doses of from two to five drops; in large doses it is

a dangerous narcotic; it has been chiefly given as a sudorific in rheumatism, and applied externally as an embrocation to rheumatic joints, and to the abdomen for the after-pains of labor; when inhaled it is an anæsthetic.

RHUBARB.

This is one of the most useful and commonly-used drugs, the chief supply of which is obtained from Turkey and Russia; it is produced abundantly on the elevated lands of Tartary, Thibet, and Bhotan, growing spontaneously wherever the seed is distributed in places favorable to its growth. Some Chinese rhubarb is imported into Europe, but this is of an inferior quality. Attempts have been made to cultivate the plant for medicinal purposes in this country, but with very little success. Indian rhubarb, which is a native of the Himalayas, has been most successfully cultivated for culinary purposes, and its varieties now furnish an abundant supply of fruit for pies, puddings, and preserves.

The primary action of rhubarb is that of a mild purgative, but it has also tonic and astringent properties, so that its secondary effect is to confine the bowels; hence it is well fitted for use in diarrhœa, but not in constipation, or any affection in which a continuous aperient action is necessary; it is not fitted for inflammatory or febrile cases, although it seldom acts as an irritant; its stimulating, combined with its aperient properties, render it valuable in atonic dyspepsia. Generally speaking, it suits children and aged persons best. Where the bowels are sluggish, combined with ginger and a little soap, it makes an excellent dinner-pill. The ordinary dose of the powder is from twenty to thirty grains. Some persons have no objection to chew the root, and to such as have not, this is a very good way of taking it. The following are the principal officinal preparations into which rhubarb enters:

Compound Rhubarb Pill.—Dose, ten to twenty grains.

Extract of Rhubarb.—Dose, ten to thirty grains.

Infusion of Rhubarb.—Made by macerating three drachms of the sliced root in a pint of boiling water for two hours. Will not keep. Dose, a wineglassful.

Tincture of Rhubarb.—One of the best cordial stomachics known. Dose, one drachm to one ounce.

Syrup of Rhubarb.—Excellent for young children. Dose, one to two drachms.

There are also an immense variety of medical compounds, of which rhubarb forms an important ingredient. Mixed with gray powder, it is an excellent remedy for the irritation of the bowels,

common with children when teething. As a common aperient for the young, it is best given combined with magnesia. With both children and adults it has the property of communicating a deep tinge to the urine; this should be known, as the change of color in the secretion of the kidney may occasion alarm and misconception.

Garden rhubarb, when used as food, has a slight aperient action upon the bowels. In some cases this may be beneficial, but not in all; those who have a tendency to relaxed bowels should not take it. Generally speaking, it is a wholesome and cooling article of diet; but, if too freely taken, will be likely to cause urinary irritation; it contains oxalic and mallic acid abundantly; hence its pleasant acidulous flavor.

Rhein was the name given by M. Vaudin to a substance procured by heating powdered rhubarb with nitric acid, evaporating to the consistency of syrup, and diluting with water; it has been employed in Europe, but never much in this country. Rheinic acid is the acid contained in the stem of the garden rhubarb; it appears to be identical with oxalic acid. The purgative principle of the medicinal rhubarb has been called *rhubarbârin*.

MAGNESIA.

This is administered in three forms, viz., carbonate of magnesia (*Magnesiae carbonas*), which is the commonest kind; calcined magnesia (*M. usti*), which is the purest sort, and requires to be kept in stoppered bottles; and sulphate of magnesia (*M. sulphas*), which is Epsom salts (for its uses and doses, see Epsom Salts).

Both the pure magnesia and the carbonate are antacid, and act as mild laxatives on the bowels; but if given too often or too largely, as purgatives, they are apt to accumulate in the intestines in insoluble masses. We give magnesia as an antacid in dyspepsia, heartburn, pyrosis, gouty and lithic disorders. It is a very safe laxative for children, especially when combined with rhubarb; in this combination it is administered in diarrhoea, and as a common purgative. The dose of magnesia is from three to five grains for children; from ten to thirty grains for adults, according to the required action. In habitual constipation, a combination of magnesia, rhubarb, and ginger, is found serviceable: this is commonly called Gregory's powder. A mild effervescent draught, which is slightly aperient, may be made by mixing one drachm of carbonate of magnesia with two tablespoonfuls of water, and then adding one tablespoonful of fresh lemon-juice, or one-half a drachm of citric acid; it

may be rendered more agreeable by the addition of a little grated nutmeg and powdered lump-sugar. The calcined magnesia is always to be preferred; but especially so when there is much wind in the bowels, or when they are in an irritable state. For heartburn, about half a drachm of magnesia, with twenty drops of sal-volatile, should be taken just before a meal; about fifteen or twenty drops of compound-tincture of lavender may be added. A clear solution, called Dinneford's fluid magnesia, has long enjoyed a high reputation; it is a mild and not unpleasant aperient, and may be taken safely by both children and adults, especially if a little syrup of ginger be added to it. Magnesia, it should be remembered, only acts as an aperient when there is acid in the stomach; therefore for this purpose it is best taken after fruit of some kind.

Magnesia-water is made by mixing four ounces of carbonate of magnesia with one gallon of water, and impregnating it with ten times its volume of carbonic-acid gas, by means of a forcing-pump or soda-water apparatus. It makes a clear solution, is a good antacid, and an excellent vehicle for antacid and lithontriptic medicines.

JALAP.

This is one of the commonest and most valuable purgatives, but it is used far too indiscriminately; for in irritable conditions of the bowels, or in weak states of the system generally, it is productive of mischief, on account of its active and drastic nature; it produces watery evacuations, and often nauseates and gripes. The resin is sometimes extracted and given alone, but more commonly in combination with the woody fibre; the ground root being the general form of administration: the dose is from two to five grains for children; from ten to thirty grains for adults. It is sometimes given as a vermifuge, especially if combined with a little calomel. This drug derives its name from Jalapa, in Mexico, whence it is chiefly imported. The chief officinal preparations into the composition of which it enters are—the extract, dose from five grains to one scruple; pill jalap with colocynth, five to ten grains; compound powder, in which it is combined with cream of tartar and ginger, one scruple to one drachm; tincture, one to three drachms; resin, three to twelve grains; mixture, one to one and a half ounces. The most efficient for ordinary use is the compound powder. *Jalapine*, which is the alkaloid, or active principle of jalap, may be sometimes given with advantage under careful superintendence; but it is too powerful for domestic use; the dose is about one-eighth of a grain; the smallness of the quantity required renders it a good mode of ad-

ministering this nauseous drug, but it should never be intrusted to ignorant hands.

ALOEES.

This is a resinous substance of an extremely bitter and aromatic taste. A full dose operates slowly, though certainly, as a stimulant cathartic, acting chiefly on the lower bowels; in small doses it is stomachic and tonic. Aloes is ranked among the *Emmenagogues*, and is useful as a remedy for the sluggish bowels to which persons of sedentary habits are particularly liable; a five-grain pill, every other night at bedtime, will generally be found sufficient. In dyspepsia, hypochondriasis, and jaundice, aloes may be given with advantage; it has a stimulating action on the rectum, and also on the uterus, therefore must not be prescribed when there is a tendency to piles, nor during pregnancy; on account of its extreme bitterness, pills are the best form of administration; if a liquid form is adopted, it should be combined with liquorice and bitter tonics, which increase the purgative powers. There are three kinds of aloes commonly kept by druggists, viz., Socotrine or Cape, Barbadoes, and hepatic; the former is the best for medicinal purposes, the two latter being too drastic in their operations; they are more generally used by the veterinary surgeon. The following are the chief pharmaceutical formulas into the composition of which aloes enters: extract of aloes, dose, one to five grains; compound decoction of aloes, one-half to two ounces, a mild cathartic, and antacid; enema of aloes, employed in dislodging worms from the rectum; compound powder of aloes, dose, ten to twenty grains, as a cathartic and sudorific, having in it a portion of gum guaiacum and cinnamon-powder; there is also a powder of aloes with canella, formerly much used as an aperient, under the name of *hiera picra*; it is not found in the late Pharmacopœias. There is, also, a tincture of aloes, simple and compound, the dose of the former being from half a drachm to half an ounce, and of the latter, from one to two drachms; and wine of aloes, given as a stomachic and purgative: in the former case from one to two drachms, and in the latter from one to two ounces.

CASTOR-OIL.

This well-known purgative is expressed from the seeds of the *Ricinus communis*, or *Palma Christi*, a plant of the natural order *Euphorbiaceæ*, found in the East and West Indies. This oil is the mildest, safest, and most certain cathartic known, seldom griping,

or causing flatulency; it may, therefore, be administered in irritable conditions of the system to persons suffering from debility, and young children; after childbirth, in operations for lithotomy, in peritonitis, dysentery, and where there is inflammatory disease of the urinary organs. With most purgatives, the immediate effect is followed by a constipating tendency; it is not so with castor-oil, the dose of which, after repetition, may be generally decreased; the usual quantity required is, for children, one to two drachms; for adults one to one and a half ounces; the best vehicles for its exhibition are tea, coffee, gruel, barley-water, spirits-and-water, or peppermint, or some other aromatic water; those to whom its oily flavor is especially nauseous will do well to chew a piece of fresh orange or lemon peel just previously to taking it; this renders less acute the nerves of taste. It is sometimes made into an emulsion as follows: put into a clean mortar the yolk of an egg, add to this six drachms of castor-oil, and well mix by trituration; then add gradually, to the extent of six ounces, cinnamon, or some other aromatic water. The mixture has the appearance of rich cream or custard; the dose is about an ounce, that is, two tablespoonfuls. Exceptional cases sometimes occur of stomachs that will not retain the oil, disguise it how you may; and on some it acts like a drastic purgative, causing intolerable pain or a deadly faintness during its operation; such persons should avoid taking it.

The term cold-drawn castor-oil, which commonly appears on the druggists' labels, refers to the mode of expressing it from the seeds between cold, instead of hot plates, as it was formerly prepared; drawn in this way, the oil is clearer, purer, and less likely to become rancid by keeping. If good, it is without smell and almost colorless; although thick, so that it flows from the bottle slowly, yet it is lighter than any watery vehicle, on which it will float in a body, and so go easily down the throat at a gulp; when it has become of a light-brown or dark-yellow color, and has a hot, nauseous taste, it is rancid, or badly prepared, and is unfit to take.

GAMBOGE.

This well-known yellow gum-resin is the produce of an uncertain species of *garcinia* found in the East Indies. It is powerfully drastic, cathartic, and hydragogue, very irritating to the stomach, and likely to cause vomiting; hence its frequent employment for the expulsion of the tape-worm. Of most remedies for this parasite, gamboge forms an ingredient. It is not often given alone as a purgative, on account of its tendency to produce vomiting and griping; but, in

combination with other cathartics, it operates more favorably; combined with bitartrate of potash, it is useful in dropsical affections; in solution with alkalies, it acts as a diuretic. The dose of the powdered gum, as a full purgative, is from two to six grains; as an alterative, from half a grain up to six grains; of the compound gamboge-pill, and that of gamboge and scammony, the dose is from one to three five-grain pills; of the alkaline tincture, we give from thirty to sixty minims; and of Swediaur's, or the ammoniated tincture, one drachm; this latter should be given with great caution. For the expulsion of worms, the following is a good formula:

Gamboge,	. . . . .	10 grains.
Sulphate of iron,	. . . . .	6 grains.
Lump-sugar,	. . . . .	20 grains.
Oil of peppermint,	. . . . .	3 drops.
Water,	. . . . .	3 ounces.

One ounce to be taken every four hours, until the desired effect is produced.

COLOCYNTH.

This is a drastic purgative; it was used by the ancients in dropsical and lethargic diseases, but is now principally given in habitual constipation, in affections of the brain, as a revulsive, and in various diseases where an active purgative is required. In small doses it is expectorant, diuretic, and alterative; in overdoses poisonous, producing excessive irritation of the mucous membranes; the dose of the powder is from two to eight grains; in this form it is seldom given; of the pill, or extract, from five to ten or fifteen grains; it should never be given without some aromatic, to correct its griping tendency, and, to effect this object, is sometimes triturated with gummy farinaceous substances. A watery decoction, or infusion, has been recommended as less drastic than any other form of administration, and as especially good for worms, but this is not often used.

WILD-CUCUMBER (*Elaterium*).

The expressed juice of the fruit of this plant deposits a fecula, which, when dried, has been known by the name of *elaterium*. It is a very powerful cathartic, and is supposed by some physicians to be the best hydragogue purgative we possess. It is frequently employed in dropsies, when purgatives are admissible, and other milder remedies fail in evacuating the water; and it appears that ancient as well as modern physicians administered it with much confidence and success. But it is often very violent in its action,

and requires to be given with caution, more especially in elderly or debilitated subjects. Its dose is a quarter of a grain, made into a pill, and repeated every second or third hour, until it begins to operate, when no more should be given until the extent of its operation is ascertained. It is frequently advisable to unite the elaterium with the same quantity of calomel. The patient must always be supported with strong beef-tea and bread, etc., during its operation. The strength is variable in different specimens of this medicine. Of a good specimen, prepared according to Clutterbuck's method, one-twelfth of a grain is a dose.

CROTON-OIL.

Except elaterium this is the most powerful of known drastic purgatives: it acts very speedily, when it does act, but this is somewhat uncertain; one of its most marked effects is to increase the flow of urine. In obstinate cases of constipation, dropsy, and in apoplexy and paralysis, where it is desirable that a speedy irritant action on the intestines should be produced, resort is generally had to this oil; and in locked-jaw and mania it is of great advantage; a few drops placed on the tongue will produce catharsis. Externally it is a strong counter-irritant, producing redness, soon followed by pustular eruptions; thus employed, it is very useful in inflammation of the chest.

MANNA.

The sweet concrete juice which now goes by this name is produced by several plants, but chiefly the *Ornus* (or *Fraxinus*) *Europæa*, and *O.* or *F. rotundifolia*. This juice exudes spontaneously, but is generally obtained by making incisions in the tree; the best kind is called flake-manna (*M. canulata*). Manna has a sweet and slightly bitter taste, and acts as a gentle laxative; its purging property being due to the presence of a peculiar unfermentable sugar called mannate. In disorders of weakly women, and the affections of children, both manna and mannate are useful; having no unpleasant taste, they may be conveniently mixed with the food; the dose is, for children, one to two drachms; for adults, one to two ounces.

ROCHELLE SALTS.

The tartrate of potash and soda, used medicinally as a mild aperient; it was first found in a native state in Rochelle, hence its name; it has not the nauseous taste of the Epsom or Glauber salts,

and is, therefore, useful in cases which require a saline aperient, and in which they cannot be taken; it forms the active component of Seidlitz powders, and may be safely given to children with infusion of senna; the dose is from one drachm to one ounce; it is well suited for cases of calculus, jaundice, and puerperal fever. It is the most convenient alkali for use in rheumatism.

RESIN OF PODOPHYLLUM.

This is one of our best native cathartics. It is made from the root of the May-apple. In doses of ten to twenty grains it is an active purge like jalap, quite as certain, and little apt to gripe; combined with a saline, as cream of tartar, it is a good hydragogue. Its best use is in habitual-constipation. In these cases, given daily in very small doses, half or a quarter grain, it stimulates the bowels just enough to cause an evacuation, as nearly as possible in the manner of nature.

SCAMMONY.

This is a concrete gum. It is a powerful drastic purgative, stronger than jalap, and less unpleasant to take; it is useful as a hydragogue in dropsies, and is given as a vermifuge in combination with calomel, and in other cases which require an active purgative. In irritable states of the stomach, however, it is decidedly mischievous. It enters into the composition of several of the pharmaceutical preparations, and is a favorite ingredient with vendors of nostrums. The dose of the powder for adults is from five to ten grains; for children, from three to five grains. It should always be combined with an aromatic, to prevent griping. The best scammony is that from Aleppo, which contains twice as much of the active principle as that from Smyrna. The compound scammony-powder is a combination of this gum with jalap and ginger, one part of ginger to two parts each of jalap and scammony.

SEIDLITZ.

The name of a Bohemian spa, whose waters owe their aperient quality to the presence of sulphate of magnesia, of which one hundred grains are said to be contained in every pint of the water, which differs essentially from the cooling aperient drink taken in this country under the name of Seidlitz-powders. These consist generally of two drachms of Rochelle salts, two scruples of carbonate of soda, dissolved first in about half a pint of water; then add half a drachm

of tartaric acid, and drink while effervescing. There is no saline aperient so pleasant to take as this.

SELTZER-WATER.

This is a purgative mineral water which owes its active properties to the presence of four grains of subcarbonate of soda, two of subcarbonate of magnesia, and twenty of muriate of soda, in twenty ounces of water impregnated with carbonic-acid gas. It is useful in some forms of dyspepsia and gravel; to those in good health but little good can result from the habitual use of it.

CHARCOAL.

This is a simple, certain cathartic, and antiseptic, useful in all disordered states of the stomach and the intestinal secretions. In doses of a teaspoonful, or twice that quantity stirred in water, it corrects offensive breath and mildly moves the bowels. No medicine can be used with less harm. Combined with carbonate of soda in equal quantities, it is useful in nearly all gastro-hepatic affections. As an application to foul, ulcerated surfaces, it may be added freely to the common bread-and-milk poultice.

IPECACUANHA.

This is one of the most valuable of medicinal plants; taken in small doses, it is expectorant and diaphoretic, having a specific action on the bronchial mucous membrane, so as to excite its secretion when too dry; it relieves the system, and causes sweating. In full doses, of about twenty grains, it is the safest and easiest emetic known; it does not nauseate, and reduce the system so much as tartar-emetic, nor is it so rapid and irritating in its action as sulphate of zinc, which, however, is to be preferred in cases of narcotic poisoning, as promptitude of action is there of the utmost consequence, and irritation of the system is rather beneficial than otherwise. For children and delicate persons, ipecacuanha should always be preferred, where it is necessary to excite nausea or vomiting; its expectorant property renders it especially serviceable in catarrhal affections, in which it is frequently given in combination with squills; in febrile affections, we often employ it as a diaphoretic, combined with opium, as in Dover's powder. In whooping-cough and asthma it is given to relieve spasmodic constriction, and clear the passages of phlegm by vomiting; and in dyspepsia and dysentery it is also found beneficial. Of the powdered root, the

dose, as an expectorant, is one or two grains; as a diaphoretic, two to four grains; as an emetic, ten to twenty grains, according to the age and strength of the patient; for the latter purpose, it should be given in plenty of warm water, and as much as possible of this should be drunk after it.

Among the officinal formulæ of this plant are the decoction, extract, lozenges, each containing half a grain; powders, simple and compound; pills, combined with opium and squills, syrup, and wine; the last is the most generally used; it may be made for domestic purposes by digesting for seven days one ounce of the bruised root in a pint of sherry wine; dose, as expectorant and diaphoretic, ten to thirty minims; as emetic, two to four drachms, or, for children, twenty minims to a drachm. By boiling down one ounce of this with the same quantity of water, and two ounces of sugar, a syrup may be made for infants, of which from half a drachm to a drachm will be sufficient to produce vomiting.

ANTIMONY.

Antimony is a metal commonly found associated with sulphur; it forms the base of several medicinal preparations of great utility, although possessing dangerous properties. In old pharmacopœias it appears under the various forms of crude antimony, which is the ore mixed with sulphur; regulus, the pure metal; argentine flowers, an oxide, the result of combustion of the metal; glass, liver, and crocus of antimony, which are all oxy-sulphurets, the result of heating and vitrification of the ore. There is also powder of algaroth, a protoxide, and kermes mineral, which is the golden sulphuret of antimony, so called from its resemblance to an insect of that name, and its rich yellow color.

The preparation of antimony now chiefly used in medicine is the potassio-tartrate, commonly called tartar-emetic; externally a counter-irritant, applied in the form of ointment; internally a diaphoretic, in doses from one-twelfth to one-sixteenth of a grain; an expectorant, one-sixteenth of a grain; a contra-stimulant and emetic, from one to three grains; and also a most effective sedative in diseases of the brain inflammatory in character. This is the most certain in its operation of all the preparations of antimony; hence its frequent employment in febrile and other diseases, especially those of the lungs and bronchial passages. Its most common form of administration is antimonial wine, the dose of which for adults is from twenty to thirty minims. It is very useful in whooping and other coughs, to promote expectoration and relieve the chest and trachea

of phlegm; and in active inflammation of the lungs, etc. The effect of antimony upon the pulse is generally very marked and rapid, and the prostration of strength which follows its administration renders it a dangerous remedy in the hands of an unqualified person. It is much too indiscriminately given. If an emetic is required, ipecacuanha-wine is as certain in its operation, and much safer.

The caution cannot be too constantly impressed upon the public, that all preparations of antimony, except very carefully crystallized tartar-emetic, contain more or less arsenic, a metal originally combined with antimony in its native state, and pertinaciously associated with it through all its modifications. The tartarized antimony of the shops is not always "carefully crystallized," hence the danger of its too indiscriminate use. In that sudden and often fatal disease in children called croup, tartar-emetic is one of the most ready and effectual remedies. Should the attack be violent, one-eighth of a grain may be given every quarter of an hour. Preparatory to the passage of an instrument into the urethra, or other constricted part, or the reduction of a dislocation, it is often administered with good effect, causing a relaxation of the muscles, and rendering the operation comparatively easy.

One of the mildest and safest forms of administration of antimony is the antimonial powder, commonly sold as James's powder, a patent medicine, from which it differs but little in its mode of preparation; dose, as an alterative, one to three grains; as a diaphoretic, three to eight grains; in larger doses, an emetic and purgative.

MUSTARD.

Mustard is an excellent stimulant and rubefacient, and has generally a good effect when applied over the seat of internal inflammation, especially when the seat of such is the chest, belly, or throat. The best way to make a mustard poultice or sinapism is, to mix together equal parts of the best flour of mustard and of wheat, add sufficient boiling water to make up a very stiff paste, which spread thickly on a piece of linen rag of the required size; put a piece of thin muslin over it, and then apply it to the part affected; allow it to remain on about twenty minutes, or half an hour, if it can be borne, so that it reddens the skin without producing a blister; then take it off, and sprinkle the part, should it heat and burn much, with flour, or dress with simple cerate. Mustard lotions and ointments are sometimes used for local friction in paralysis, and as applications for chilblains and other indolent swellings. In cases of paralysis, poisoning, or torpor, from any cause, a mustard foot-bath to rouse

the system may be beneficially employed. Mustard is also a stimulant to excite the stomach, and an emetic. For a stimulant, the seeds may be given whole, and thus given they are somewhat laxative. The dose of the flour of mustard, as a stimulant, is from one scruple to two drachms; as an emetic, about half an ounce or more; of the seeds, about a drachm may be given.

Vinegar is sometimes added to a sinapism; but, if the mustard is good, this is not required.

SQUILL.

In small doses squill is expectorant, diaphoretic, and diuretic; in large, emetic and purgative; in very large doses, the acrid principle which it contains is likely to render it poisonous. As a diuretic, the squill is generally given in dropsies; as an expectorant, in chronic bronchitis; it is usually combined with other medicines, as ipecacuanha, paregoric, etc. Its chief officinal preparations are the compound squill-pill, dose from five to fifteen grains; vinegar and oxymel of squills, dose from one-half to one drachm; tincture of squills, dose from ten to thirty minims. The dose of the powder, as an expectorant, is about one grain.

ZINC.

The chief medicinal preparations of this metal are: 1. The acetate, which is rarely given internally, but is well adapted for astringent lotions and injections, being milder and less irritating than the sulphate; it is found to answer well in leucorrhœa and gonorrhœa, and also as a collyrium in ophthalmia; strength, half a drachm to a pint of distilled water. Sulphate, or white vitriol, given as an astringent in fluxes and hæmorrhoids; as a tonic in general debility; and as an antispasmodic in cholera, epilepsy, gastrodynia, hysteria, and neuralgia. In large doses it acts quickly as an emetic, without producing much nausea and prostration, as most emetics do; it is, therefore, well adapted for administration in cases of poisoning; for this purpose it may be given in half-drachm doses, repeated every quarter of an hour, in warm water; the dose, as a tonic and antispasmodic, is from two to ten grains; in epilepsy the dose may be greatly increased, from the minimum quantity to as much as will be borne without vomiting. This is one of the best astringent applications known, and is constantly used in eye-waters, gargles for relaxed uvula, injections for gonorrhœa, etc.; it makes a good injection for piles; strength, one drachm to one pint of water. What is commonly called flowers of zinc is, in fact, the oxide which flies up when the metal is exposed to a temperature in the air a

little above its melting-point, in the form of a fine white flocculent powder. Its action is mainly antispasmodic. Chloride, sometimes called butter of zinc, is one of the most powerful caustics known; has been given in small doses, but is generally used for external application, to destroy the surface of a cancerous or phagedenous sore, or the eruption of lupus, being safer than arsenious acid; for such a purpose, it is generally made into a paste, with flour, or combined with chloride of antimony.

BLUE VITRIOL.

Blue vitriol, or sulphate of copper, is powerfully emetic in the dose of five or six grains in water; and astringent in the dose of a quarter of a grain, combined with extract of logwood. In doses of from two to twelve grains, dissolved in two ounces of water, it operates almost instantly as an emetic, and is, therefore, an eligible medicine to excite vomiting when laudanum has been swallowed as a poison. A solution of it in water is a very beneficial application to indolent and foul ulcers, which it stimulates and cleanses, and thus promotes their healing. In the dose of a quarter of a grain, or even half a grain, mixed with extract of logwood, it is efficacious in diarrhœa and dysentery.

LOBELIA (*Indian Tobacco*).

In small doses this promotes the secretions of the gastro-pulmonary tissues, and at the same time affects the nervous system as a narcotic. In larger doses it is an emetic, and its operation is attended with general relaxation. In still larger doses it produces excessive prostration and death. Its dangerous character has prevented its employment to a great degree, though it is a certain and in careful hands a most valuable remedy. It is almost a specific for spasmodic asthma. In powder the dose for an adult is from ten to twenty grains. Half an ounce of the tincture is an emetic dose. For an expectorant, give one or two drachms; to a child, five to twenty drops. Every part of the plant has medicinal effect, but the parts most powerful are the leaves and capsules.

BALSAM OF PERU.

This balsam is demulcent, stimulant, and tonic, and is used in chronic coughs, whites, palsy, and chronic rheumatism; but it is improper wherever any inflammatory action is present. As an external

application, it is employed with advantage in cleansing and stimulating foul and indolent ulcers. The dose is from ten drops to a drachm, twice a day.

BALSAM OF TOLU.

This is obtained from the same tree as the preceding, and may be considered as the white balsam of Peru, hardened by exposure to the air. Its virtues and dose are similar to the Peruvian balsam, but it is less stimulating.

The Tolu lozenges are made by mixing together eight ounces of fine sugar, one ounce of cream of tartar, two drachms of starch, and a drachm of the tincture of balsam of Tolu of the Edinburgh Dispensatory, which are brought to a proper consistence, and formed into lozenges, by means of a sufficient quantity of mucilage of gum-tragacanth.

SENEKA.

Seneka, or senega, is a stimulant to the mucous membranes and skin, and is expectorant, acting especially on the bronchial tubes—the air-passages; and is therefore useful in chronic cough and humoral asthma. It is a very valuable remedy in some cases in the latter stages of bronchitis, in aged and debilitated constitutions; and its efficacy is greatly increased in combination with sesquicarbonate of ammonia.

It is best given in decoction. Ten drachms of seneka-root are mixed with two pints of water, and boiled down to one pint, of which the dose is from two to four tablespoonfuls, three times a day.

BENZOIN.

Gum-benzoin is the balsamic resin of the *Styrax benzoin*. It is a good stimulant and expectorant; and, when burned, its vapor is deodorant, and antiseptic; it is therefore useful in sick-rooms and hospitals. When sublimed by heat, it yields benzoic acid; this, as well as the gum itself, is diuretic and useful in calculous disorders, especially where there are phosphatic deposits; its combinations with ammonia, potash, and soda, called benzoates of these alkalies, are more decidedly diuretic, and useful in dropsy and gouty concretions, etc. They may be readily prepared by adding benzoic acid to the alkalies. Benzoin mixed with ointment prevents rancidity; its vapor is thought to be good in whooping-cough; it is a common ingredient in cosmetic washes, and makes a good balsamic tincture for wounds and cuts.

MYRRH.

This gum-resin possesses tonic and antispasmodic properties, and acts upon the mucous membrane as a balsamic, checking the secretions when excessive. It is given in atonic dyspepsia, in chlorosis, in amenorrhœa, and in chronic bronchitis, often in conjunction with aloes and chalybeates. The tincture is used in gargles, and the powder-gum in dentifrices; the latter is also sometimes applied to foul ulcers; the dose of the powder is from ten to thirty grains; the best form of exhibition is the pill form, in combination with aloes, rhubarb, galbanum, assafœtida, and sulphate of iron; its official preparations are the tincture of myrrh, compound iron mixture, and pill of aloes with myrrh; the latter of which is a good laxative for dyspeptic patients.

SANGUINARIA (*Bloodroot*).

This is an effective expectorant, an emetic, an alterative, a tonic, and even a narcotic, differing in its effects according to the way in which it is used. In small and repeated doses it increases secretion in the whole mucous tract. Give of the powder five grains in pill every two hours, or at similar intervals twenty to thirty drops of the tincture.

SERPENTARIA (*Virginia Snakeroot*).

Warmth and rest in bed, with a moderate heat in the room, are the best diaphoretics. Next come medicines. The root is the part used; it is in the form of slender fibres, with knotted heads. It is an aromatic, tonic, and diaphoretic, in large doses causing nausea and relaxation of the bowels. It was at one time much given in agues and other intermittents, usually in combination with bark; it is still sometimes administered, with stimulants and diaphoretics, in typhoid and other fevers of an exhaustive character. The dose of the powder is from ten to thirty grains; of the infusion, from one to two ounces; of the tincture, from one to three drachms.

DOVER'S POWDER.

This preparation of opium, ipecacuanha, and sulphate of potassa, is a very certain and admirable diaphoretic. It may be given to grown persons in doses of ten grains. In that quantity there is one grain of opium.

SPIRITUS MINDERERI.

This is the liquor ammoniæ acetatis, and, in doses of a teaspoonful once in two hours, excites and keeps up a gentle action of the skin. It is an excellent article in nearly all cases of fever, and is sold by the apothecaries as "fever-drops."

NITRE.

Nitre is refrigerant and diuretic. Taken in repeated small doses of six or eight grains, it abates heat and thirst in fevers and inflammations, diminishes the force and frequency of the pulse, and increases the secretion of urine. It is, therefore, efficaciously given in rheumatic fever, and all inflammatory diseases, and generally forms a part in saline draughts. But it is improper in hectic fevers. In the foregoing diseases, it is best given in doses of six or eight grains, every three or four hours, dissolved in water, and in combination with the solution of acetate of ammonia and antimonial wine. In some kinds of dropsy, it may be given to the extent of a drachm every morning, dissolved in ale, and in this manner it has cured several cases.

It frequently affords relief in the advanced stages of indigestion, and what are too often called liver-complaints. It is most useful in allaying the general increase of heat, and burning in the hands and feet which are so apt to come on in these disorders toward night; but it likewise seems to add to the good effects of the other alterative means employed, whenever there is a considerable hardness in the pulse. It is not at all adapted to recent cases of indigestion, nor to those of some standing if there is no evident tightness in the pulse. The dose most extensively useful, in the former description of case, is five or six grains, which may be made into a draught with twelve drops of tincture of henbane, half an ounce of Mindererus's spirit, and an ounce of water, and taken thrice in the twenty-four hours. If the languor of the circulation be considerable, it will often be better to substitute a drachm of the tincture of orange-peel for the henbane.

A small portion of it, allowed to dissolve slowly in the mouth, often removes incipient inflammatory sore-throat; and it is a useful adjunct to gargles in that complaint.

In very large quantities, which have sometimes been given by mistake for other salts, it excites vomiting, bloody stools, convulsions, and even death. The best antidotes are opium and aromatics. Copious draughts of a decoction of linseed or barley, or sugar and

water, should be taken, and the poison extracted from the stomach by the stomach-pump.

SWEET SPIRIT OF NITRE.

This medicine is a pleasant refrigerant and diuretic, and is used with much advantage in all febrile affections, to allay heat and quench thirst, and in dropsy as an adjunct to other diuretic remedies. Its operation is greatly increased by dilution with water, or some other aqueous vehicle. In fevers, thirty or forty drops of it may be given every three hours, united with two drachms of the solution of acetate of ammonia, and an ounce and a half of water. In dropsy, it may be administered to the extent of a drachm at a dose, combined with other and more powerful diuretics.

JUNIPER.

Juniper-berries yield a volatile essential oil, upon which the flavor and diuretic properties of the spirit called Ginevra, or gin, principally depend. The berries of the common juniper, when ripe, are of a purplish-black color; they have a strong aromatic odor peculiar to themselves, and a flavor much like that of turpentine; they are aromatic, stimulating, diuretic, and diaphoretic, and are chiefly employed as an adjuvant to other remedies, and to increase the flow of urine in cases of dropsy; the dose of the berries themselves is from one to three drachms; they may be taken in powder, but the oil of compound spirit is more frequently administered; the dose of the former is from four to six minims; of the latter from two to four drachms. An infusion of juniper-tops is sometimes taken; it may be prepared thus:

Fresh tops of the plant,	1 ounce.
Boiling water,	1 pint.

Infuse for two hours and strain; take a wineglassful twice a day.

It is best, however, used as a vehicle for other diuretics.

In some parts of Europe, juniper-berries are roasted, ground, and used as a substitute for coffee; they are also employed, in Sweden and Germany, as a conserve, and as a culinary spice, especially to give a flavor to that favorite dish of the Germans, sauer-kraut. The gum-sandarac, which exudes from one of the species of juniper, constituted, when powdered and sifted, the substance called pounce; and the oil of juniper mixed with nut-oil makes an excellent varnish for pictures.

DIGITALIS (*Foxglove*).

In its medical qualities this is sedative and diuretic. It has a great influence over the action of the heart, and of the extreme vessels of the circulating system, and is, therefore, often very beneficially employed in palpitation, dropsy, aneurism, and delirium tremens. It diminishes the frequency of the pulse, and the general irritability of the system. In palpitation of the heart, accompanied with great nervous irritability, it may be combined with camphor-mixture and tincture of columba, and is often very useful.

It may be given in substance, in watery infusion, or in tincture. When given in substance it is always proper to begin with a dose not exceeding a grain of the powdered leaves, made into a pill, twice a day, it being gradually increased till its effects are apparent either on the kidneys, the stomach, the pulse, or the bowels; the medicine then must be discontinued. But in dropsy it may be repeated after an interval, if the whole of the water be not evacuated. The infusion is made by macerating for four hours a drachm of the dried leaves in half a pint of boiling water, to which is then added half an ounce of spirit of cinnamon. The dose is from two to six drachms given twice or thrice a day. The tincture contains all the virtues of the plant, and may be given in doses of ten or fifteen drops thrice a day. If foxglove occasions vomiting or purging, it almost certainly fails as a diuretic, and should, therefore, in such cases, be united with a small quantity of opium or opiate confection. In dropsy its efficacy is increased by being combined with calomel; and an occasional dose of sweet spirit of nitre is useful in counteracting nausea and flatulence. During its employment, under any form, diluting drinks are useful and necessary; and, immediately it is discontinued, the strength should be recruited by generous food, steel, and cordial tonics.

The deleterious effects of an overdose are best counteracted by laudanum in brandy-and-water, and by the application of a blister to the pit of the stomach.

It is a dangerous medicine. The unpractised are very apt to be deceived in the dose, as the first or second may appear to be without effect, and when the third is given all three take hold at once with accumulated power. Thus, there may be a poisonous dose in the system at once.

BUCHU.

Buchu is aromatic, stimulant, and actively diuretic. Taken internally it gives tone to the digestive organs, promoting the

appetite, and correcting nausea and flatulency. It has been almost exclusively used in diseases of the urinary organs. In chronic inflammation of the bladder it frequently proves beneficial, allaying irritation and checking excessive secretion. It has also been used with good effect in rheumatism. The dose of the powdered leaves is twenty or thirty grains two or three times a day; of the infusion one to two ounces, and of the tincture one to four drachms.

COPAIBA.

This is a balsam or resinous juice. It is strongly diuretic, and stimulates the mucous membranes generally; in large doses laxative, and is commonly given in diseases of the urinary organs, especially gonorrhœa; it is also useful in chronic affections of the chest. It may be applied externally, with advantage, to chilblains and indolent ulcers. The dose is from ten to sixty minims, in plain or aromatic water, bitter infusion, or tincture, or any convenient vehicle; to some the taste is extremely nauseous, and may best be got rid of by chewing some orange-peel after it. An emulsion of copaiba is sometimes made by mixing the balsam with mucilage, yolk of egg, or liquor of potash; it should be strongly flavored with oil of cinnamon. There is also an oil of copaiba, dose fifteen to twenty minims. Syrup, two to eight drachms, and resin ten to thirty grains. Copaiba-capsules are formed by enclosing the balsam in little vesicles of gum-acacia; in this manner it may be taken without the objectionable flavor being noticed; the capsules may be bought of any druggist, with directions for use.

CUBEBS.

Cubebs is a species of Java pepper. It is diuretic, and slightly purgative, and certainly possesses considerable effect in allaying irritation in the urethra and mucous membrane of the bowels. It has been much and successfully used of late in the cure of gonorrhœa; but it will be found of great service in many cases of weakness, relaxation, or deficient action in the larger bowels, in which it acts as a mild stimulant and corroborant, that improves the secretion of the parts, and gives a cool sensation to the rectum, in passing the fæces. It is useful in whites, and in the chronic affections of other mucous membranes, as in chronic disorder of the bladder, etc.

The best mode of taking it is in powder, in doses of from a scruple to a drachm and a half, four times a day, in water. It is frequently adulterated.

CANTHARIDES.

The blistering or Spanish fly. Not only is this insect of the beetle-tribe much used as a blistering agent, but it is also given internally, acting chiefly as a stimulant of the urinary organs; it has been found especially useful in obstinate gleet, paralysis of the bladder, and as a diuretic in atonic dropsy, as well as in some diseases of the skin. It should, however, be administered with great caution, as an overdose will very likely produce strangury, and set up inflammatory action which may lead to fatal results. The best remedies are clysters of starch and linseed-tea, with or without laudanum, milk, emulsions of acacia, and other demulcent drinks; bleeding if there is much fever, warm baths, and aperients and nauseating medicines. Camphor has been highly recommended in a case of this sort, but we question its efficacy; calomel may be given with advantage in small and frequent doses. Besides the blistering preparations, such as ointments and plasters already spoken of, there is a cantharides-liniment and other compounds, used as stimulants and rubefacients.

UVA URSI.

This is a trailing shrub found in all mountainous districts of the Northern Hemisphere, both of the Old and New World; the leaves are used medicinally as an astringent, tonic, and diuretic; their more particular action appears to be on the urinary organs; they are especially rich in tannic acid, containing about thirty-six per cent.; they are chiefly given in chronic inflammation of the bladder, and have to be continued for a considerable time. This medicine is sometimes prescribed in combination with hyoscyamus, in which combination it is found serviceable in cases of irritation from the presence of stones in the bladder. The dose of the powdered leaves is from one scruple to one drachm every three or four hours; of the extract from five to ten grains, as a tonic; of the decoction from one to two ounces. This is made by boiling one ounce of the leaves in one and a half pints of water till it is reduced to a pint.

PAREIRA BRAVA.

This is a perennial plant, growing in the West India islands and in South America. The root, which is the part employed, is brought from Brazil; it is long, thick, and covered with a furrowed brown bark. It has little or no smell; the taste is bitterish, blended with a sweetness like that of liquorice.

It has been for many years in high repute among the Brazilians as a remedy in all obstructions of the urinary organs. The common people of Jamaica use a decoction of it for pains and weakness of the stomach proceeding from relaxation, and it is probable that its effects in urinary disorders are due chiefly to its tonic influence on the bladder. One of the most prominent symptoms of chronic inflammation of the bladder is an abundant discharge of a ropy adhesive alkaline mucus, and we have Sir B. Brodie's testimony to the fact that the use of the decoction of the root of the *pareira brava* is here frequently productive of excellent effects.

The decoction is prepared by simmering four ounces of the root in three pints of water, until it is reduced to two pints, and then strained; the dose of this decoction is a small teacupful (about four ounces) twice or thrice a day. A little tincture of henbane may sometimes be advantageously combined with it.

DULCAMARA (*Bittersweet*).

The woody nightshade, the dried twigs of which are used medicinally, being regarded as alterative, diuretic, sudorific, and mildly narcotic; it is used in skin-diseases and catarrhal affections; also in scrofula, chronic rheumatism, and syphilis; the dose being, of the powder, from one to three scruples; of the decoction, about a wine-glassful; of the extract, from five to ten grains; of the syrup, half an ounce to an ounce. This plant is nearly allied to the potato, which it very closely resembles in the odor of its root. It grows wild in roadside hedges, and especially affects those near ponds or streams of water; its twining stems often reach to the height of five or six feet; its purple-and-yellow blossoms, and bright scarlet berries, closely resemble those of the deadly nightshade; and children are said to have been poisoned by eating the berries; as have grown persons from an overdose of the decoction of the fresh twigs, which, in the country, are still extensively used. There are, however, many safer and better remedies. For making the decoction, the twigs should be gathered whenever as thick as a goosequill; one ounce of them, chopped up, to be boiled in a pint and a half of water, until reduced to half the quantity.

EUPATORIUM (*Boneset*).

This is a tonic sudorific. In moderate doses in powder, or cold infusion, it is tonic; but, in larger doses and warm infusion, its action on the skin is energetic. Its popular name of boneset is derived from its efficiency in what is called in some parts of the country the

breakbone fever.* Dose of the powder twenty to thirty grains. Make the infusion with an ounce to a pint of boiling water, and take a small cupful three or four times a day.

IRON.

This metal is used medicinally in a variety of forms, the chief value of which consists in their tonic properties, rendering them very useful in debilitated states of the system. Weak, pallid, and delicate persons may generally take these preparations with safety and advantage; but those who are habitually costive, who suffer from piles, or from a determination of blood to the head, should carefully avoid them, their usual effect being to increase the arterial action, and promote the secretions: therefore, to an excited state of the circulation they are unsuitable. As a rule, no person with a naturally florid complexion, or a full habit of body, should take iron, which is most commonly prescribed for chlorotic anæmia, scrofula, enlargements of the liver and spleen, fluor albus, gleet, passive hæmorrhages, chorea, atonic dyspepsia, chronic dysentery and diarrhœa, tic-douloureux and other nervous affections, and worms. The administration of iron should generally be preceded by that of purgatives, and, if headache or constipation follow its use, it should be discontinued.

The preparations of this metal are so numerous, and some of them so little used and unsuitable for domestic employment, that we need only particularize a few of them—such as are most available for this purpose. We may observe at the outset that they are all oxides and salts, and that they are often spoken of as chalybeates.

Ammonia-citrate of iron is an elegant and agreeable preparation, applicable especially to uterine diseases, and also to general debility. It may be given in cinnamon or other aromatic waters, but not in bitter infusions, as it turns most of them black; the dose of this is from five to eight grains. It is kept in combination with quinine, and may be beneficially exhibited when a bitter tonic is required.

Carbonate, or sesquioxide of iron, is a red, insoluble powder, disagreeable to take, on account of its bulk; as much as a drachm or two drachms of it being required, three or four times a day. It should be made into an electuary with confection, honey, or treacle. It is a good chalybeate tonic, and has a high reputation for the cure of neuralgic affections, especially tic-douloureux; it must be taken for a considerable time to do much good. A very pleasant preparation

of this excellent medicine is made by Garnier & L'Amoreux, of Paris, in sugar-coated pills of three grains each, of the formula known as Valet's mass.

Iodide of iron is an excellent tonic in scrofulous debility and deficient menstruation, strumous swellings, incipient cancer, diseased mesenteric glands, and scrofula generally. The dose is from two to five grains, but it is difficult to keep either in a solid form or solution, as it very soon decomposes. It may be obtained in the form of syrup, and may be kept good in a well-stopped bottle for a considerable time, especially if a piece of iron wire is kept in it; the dose of this is from fifteen minims to a drachm.

Muriated tincture of iron is a good astringent and tonic, and acts specifically upon the urinary organs; it is therefore useful in irritation of the bladder and retention of urine, depending on spasmodic stricture of the urethra: in vomiting and spitting of blood it is also serviceable. The dose is about ten minims, and for stricture it may be given every ten or fifteen minutes, to the extent of six or eight doses, but it should not be carried beyond this. This is also an excellent local styptic, and may be applied with advantage to loose fungous sores, and as an astringent to relaxations of the throat, with a camel's-hair brush.

Sulphate of iron, sometimes called green vitriol, but more commonly copperas, is poisonous in large doses; but in small doses, that is, from one to five grains, is a good emmenagogue, and also anthelmintic: its astringent properties render it useful in profuse hæmorrhages, chronic diarrhœa, and dysentery. It enters into the composition of the compound steel-pill, and the compound steel-mixture of the pharmacopœia, being combined in both cases with myrrh and an alkali: when properly and freshly made, in which case it will be of a decided green color, the latter is one of the best emmenagogues that can be administered. The dose is about two tablespoonfuls two or three times a day.

The *tartrate*, or *potassio-tartrate*, of iron, has similar properties with the ammonia-tartrate, and may be applied to the same purposes. One objection to the continued taking of most preparations of iron, and especially the muriated tincture, and the sulphate, is that it is likely to discolor the teeth: while taking it, persons should be careful to keep them well cleaned, and to use an alkaline tooth-powder.

BISMUTH.

The *subnitrate*, or *oxide of bismuth*, is a tonic and antispasmodic medicine of uncommon efficacy in many cases of indigestion, where

pain in the stomach is a prominent symptom. It is also of peculiar efficacy in that disorder when accompanied with frequent rejection of water from the stomach; and in spasmodic affections, such as epilepsy, palpitation of the heart, and spasm of the limbs. The dose of bismuth is from two to six or ten grains, twice or thrice a day.

It is a valuable remedy; is soluble in the gastric juice; its action is rapid; it produces no sensation of weight at the stomach; it rarely constipates, and may be employed for a long time without oppressing the stomach. All cases of gastralgia, or chronic inflammation of the digestive organs, cases in which the tongue is red and pointed, and cases in which the digestion is laborious and accompanied with putrid or acid eructations, or in which there is a tendency to diarrhœa, or spasmodic vomiting, are benefited by the employment of bismuth. It is also valuable in the vomiting of children, whether caused by dentition, or succeeding frequent fits of indigestion, and in the diarrhœa of weak children, especially when occurring at the time of weaning.

MANGANESE.

This is a metal, resembling iron in some respects; but it is so alkaline that it speedily oxidizes in air. It is found mostly as the gray oxide; but the black oxide is common also, either as a sulphate, a phosphate, or a silicate. The black peroxide is the form most generally used by chemists, and sometimes by medical practitioners. For scabies and syphilis, it is given internally, in doses of from three to twenty grains: in the former disease, and in some cutaneous maladies, it is also applied in the form of ointment. The salts of this metal are believed by some to be equal to those of iron, for their tonic properties; hence the acetate, the carbonate, and the sulphate, are used medicinally: the first as an alterative, in doses of five to ten grains; the second, for the same diseases, and in the same doses as the binoxide; and the last as an alterative simply, in doses of five to ten grains; as a purge and cholagogue, dose from one to two drachms. There are preparations of manganese with the sulphates and carbonates of iron, in which the properties of the two metals are combined. The chloride, iodide, malate, and tartrate of manganese are also sometimes given, in the form of pills, in scrofula, anæmia, and various skin-diseases.

A combination of the black oxide, salt, and sulphuric acid, makes a good mixture for the evolution of chlorine, as a disinfectant.

CINCHONA.

This is the Peruvian bark. It is obtained from several species of plants belonging to the natural order *Cinchonaceæ*, found chiefly in South America. There seems to be some doubt as to which of these particular species yields the barks of commerce and medicine. Linnæus confounded at least four of them under the trivial name *C. officinalis*, and botanists are now by no means agreed as to specific identity.

The medicinal barks are distinguished as pale-yellow and red. The red is more astringent and nauseous, and the yellow more bitter. Being powerfully tonic and antiseptic, bark was first introduced into medical practice for the cure of intermittent fevers; but it has since been largely employed in general and nervous debility, fever (if of the typhoid kind), and gangrene. It has also been recommended for gout and acute rheumatism; during its exhibition in such cases, great attention should be paid to the state of the bowels, purgatives being occasionally interposed.

The great objection to the use of powdered bark is the quantity required to be taken, the dose ranging from ten grains to two drachms, two or three times a day: milk is a good vehicle for it. Of the infusion or decoction, from one to four ounces is the dose. Where it is desirable to combine cordials, the powder may be taken in port-wine, or an infusion of the bark may be made by pouring a pint of this wine, previously heated, over one ounce of the bruised bark, and taking a wineglassful two or three times a day.

Besides the decoction, infusion, and powder, the following are forms of administering bark: Extract, and resinous extract, dose, ten to thirty grains; simple, compound, and ammoniated tinctures, dose, of either, one to four drachms. There are also a syrup and a wine of bark; and, for outward use, a cerate, an ointment, an anæsthetic cataplasm, and a powder of bark with myrrh; indeed, the combinations into which this useful ingredient enters are almost infinite.

Bark is subject to extensive adulteration; the better are not only mixed with the inferior kinds, but frequently with those from which the active ingredients have been extracted by decoction or infusion. The quill being that which fetches the highest price, the bark-gatherers sometimes call in the aid of artificial heat to give it that form, but by this process the quality is deteriorated; it may generally be known when this fraud has been perpetrated, by the darker color of the bark, and by its exhibiting, when split, stripes of a pallid hue in the middle. When bark is of a dusky color, between a yellow and

a red, it is either a bad species, or has been badly preserved. If perfectly good, it will be dense, heavy, and dry, with no smell of must, but a slight and very peculiar odor; the taste bitter, with a slight acidity, neither nauseous nor very astringent: if chewed, the fibres should not be of great length, nor stringy. But it is in the form of powder that bark is most likely to be adulterated; all sorts of woody fibres are ground up and mixed with it, and the requisite color is given with red and yellow ochre. Such adulterations it is almost impossible to detect.

Since the introduction of the alkaloids quinia and cinchona, in which the active principles of bark reside, the bark itself has fallen into comparative disuse, although some of the officinal preparations are yet frequently ordered by medical practitioners.

QUININE.

Quinine is extracted from the Peruvian bark by a chemical process, and, being afterward combined with sulphuric acid, forms the crystallized disulphate of quinia, or quinine, as it is commonly called. For internal administration this has almost entirely superseded the more bulky and disagreeable preparations of the bark itself, than which it is more active and efficacious. Except, perhaps, opium, there is no drug more valuable to the medical profession than this. As a tonic and anti-periodic, it stands unrivalled; in agues, and intermittent fevers of all kinds, it is now indispensable; in neuralgic affections, and those arising from debility, its good effect is generally marked and decided. It has lately been recommended in cases of typhoid fever, and in the sinking stage, combined with port-wine, is certainly beneficial. The common dose of the disulphate of quinia is one or two grains three times a day; it is best given in solution, combined with double the quantity of dilute sulphuric acid, without which, or some other acid, it is insoluble in water; it is often given in some bitter infusions, such as gentian, or calumba; sometimes in infusion of roses, the acid of which readily dissolves it.

Many elegant and useful combinations of this substance have recently been introduced, such as the valerianate of quinine, highly recommended as a nervine and antispasmodic; the arsenite of quinine, which combines the antispasmodic action of the arsenious acid with that of the quinia; and the citrate of iron and quinine, most serviceable in debility and facial neuralgia.

Quinidina, or *quinidine*, is an alkaloid found in some kinds of barks; it much resembles the true quinine, both in its appearance and action, although it is, perhaps, somewhat weaker. There is also

a brown kind, called *amorphous quinine*, which is the quinidine in an impure state; it does not dissolve so readily as the white crystals, nor act so efficiently; the dark, thick solution which it makes with acid is apt to cause nausea, and other unpleasant symptoms.

SIMARUBA.

Simaruba-bark possesses much the same properties as quassia, with which it has a close botanical as well as medical affinity. Like most other bitters, it causes vomiting and purging when given in large doses; it is useful in all cases where a simple tonic is required; it is not given in substance, but in the form of an infusion, the dose of which is from one to two ounces. This drug is much used in Germany in the latter stages of dysentery and diarrhœa.

GENTIAN.

The dried root of *Gentiana lutea* is one of the most deservedly valued of the bitter vegetable tonics; it is especially useful in states of exhaustion from chronic disease, and all cases of debility of the system, unconnected with excessive irritability of the stomach. It has also febrifuge, anthelmintic, and antiseptic properties, and as a warm stomachic tonic stands perhaps unrivalled. The forms in which it is exhibited are the powdered root, dose from ten to twenty grains (this is sometimes sprinkled on foul sloughing ulcers); the extract, five to twenty grains; the infusion, made by macerating two drachms of the root, sliced or bruised, with a little dried orange-peel, in a pint of boiling water for a couple of hours or so; dose, one to two ounces; mixture, the same dose: compound tincture, one to two drachms: wine, about three drachms. It is of this root that the publicans make their "bitters," either by steeping it in brandy or other spirits, or by employing the tincture to impart the needful bitterness to the spirits. By far the best preparation, however, is the infusion, which may be made to keep any length of time in the following manner: Take four ounces of sliced gentian-root, and one ounce of dried orange-peel, and pour upon them a quart of boiling water, let it stand about three hours, strain off the liquid, and pour in another quart of water, repeating this process three or four times, until the strength of the ingredients is exhausted; then put the whole of the strained infusions together in a saucepan, well lined or porcelainised inside, and boil down to a single quart; to this add two ounces of alcohol, which will coagulate the mucilaginous constituents of the

infusion, which may be separated by straining, so as to leave it perfectly clear; bottle and cork it tightly: when required for use, add one teaspoonful to an ounce of water for a dose.

QUASSIA.

Quassia is purely tonic, invigorating the digestive organs with little excitement of the circulation, or increase of animal heat; it has an intensely bitter taste, but no perceptible odor. Its virtue depends upon a bitter crystallizable principle, which has been called *quassin*; when heated it melts like resin; both alkalies and acids increase its solubility in water. A strong decoction of quassia is a good poison for flies, which would seem to be a proof that it has narcotic properties; it is said that brewers sometimes used the wood as a substitute for hops. The infusion of the quassia of the pharmacopœia is made by pouring a pint of boiling water on two scruples of the chips or raspings; it is given as a tonic and antiseptic, in bilious fevers, united with alkaline salts; in gout, with aromatics and ginger; in hysteria, with camphor and tincture of valerian; in dyspepsia, with sulphate of zinc or iron, or with mineral acids; the dose is from one ounce to four ounces.

WILLOW-BARK.

The bark of the common willow is tonic and alterative, and is useful in ague, indigestion, and some chronic eruptions on the skin. In fact, it may be efficaciously employed in all the complaints for which Peruvian bark, or quinine, is ordinarily administered. The dose of the powder is from half a drachm to a drachm, twice a day, in water. The decoction is an eligible mode of taking it, made by simmering together for half an hour one ounce of the bark in a pint of water, of which the dose is from two to four tablespoonfuls twice a day.

Salicine is the crystalline active principle obtained from willow-bark, and is a mild, bitter tonic, similar to quinine. Should quinine irritate the stomach, probably salicine would not do so. The dose is from ten to twenty grains, in a wineglassful of infusion of orange-peel, twice a day.

NUX-VOMICA.

The *strychnos nux-vomica* is a native plant of the East Indies, where it is commonly called the poison-tree. In India and Arabia it has been used as a medicinal plant from time immemorial, and

more recently in Europe as an antidote to the plague, and as a remedy in intermittents, dyspepsia, dysentery, diarrhœa proceeding from debility, worms, hysteria, rheumatism, and hydrophobia: when taken in large doses it produces fearful consequences. The symptoms of poisoning by this substance are, first, agitation and trembling; these are succeeded by stiffness and twitching of the limbs, which gradually becomes more violent until a fit of spasm succeeds, in which the head is bent back, the spine stiffened, the legs extended and rigid, and the respiration checked for a time: then follows an interval of comparative ease and composure, during which the senses are entire and unusually acute; but this is soon broken by another spasm more violent than the last, and so on until the patient dies of suffocation, produced by the spasmodic constriction of the muscles of the chest. The poisonous effect of this drug appears to be owing to its exciting action upon the spinal system of nerves. There is no known antidote for the poison, and death is generally the result of taking it, but some success has followed the use of aconite as a remedy in such cases. Tobacco has been recommended, and said to have proved efficacious in some cases. Nux-vomica contains two alkaline principles—*strychnia* or *strychnine*, and *bruchia* or *bruchine*; they are united with a peculiar acid called *igasuric* or *strychnic acid*. The pharmaceutical preparations of nux-vomica are the extract, dose one-half a grain, and the tincture, five to ten minims. Since the introduction of strychnine, however, these have been less used, and no preparation of this most powerful drug should be used except with the greatest caution.

The bark of the nux-vomica, called false angustura-bark, is sometimes used as a tonic and febrifuge; and the root, which is very bitter, is used by the natives of India to cure intermittent fevers and the bites of venomous reptiles; the fruit in which the seeds are enclosed is soft and pulpy; it is, when ripe, of a beautiful orange color, and is greedily eaten by birds; the seeds are used in the preparation of spirits, to render them more intoxicating; they may have been occasionally employed for this purpose by unscrupulous brewers, but not, as we imagine, to any great extent.

STRYCHNINE.

Strychnine, the alkaline principle of nux-vomica, is a powerful stimulant to the spinal cord, and is, in large doses, a virulent poison. It is scarcely adapted to domestic use. Notwithstanding, it has been employed medicinally with good effects, especially in water-

brash, costiveness, and paralysis of the throat and lower limbs, or of one side. "I often join with iron," says a distinguished practitioner, "small doses (from one-twentieth to one-fourteenth of a grain) of strychnine. If the pulse intermits, this remedy sometimes exhibits its tonic powers over muscular fibre by restoring regularity of beat, and thus gives you the satisfaction of feeling the good you do with it." Strychnine has great power in imparting tone and invigoration to the involuntary muscles of the stomach, and relieves the sense of oppression found in indigestion, especially where bark, iron, or other tonics, in any way disagree.

One grain of pure strychnia may be dissolved in one ounce of distilled vinegar, of which solution ten drops may be given in half a wineglassful of water, thrice a day, the dose being cautiously increased to twelve or twenty drops. Should the remedy display its influence on the system by exciting involuntary tetanic movements or convulsions of the limbs, then the medicine must be either discontinued, or much lessened in the dose.

CITRATE OF QUININE AND IRON.

This salt is now employed very extensively as a general tonic, and is found efficacious in all cases where quinine and its salts, and especially in combination with iron, are applicable. It will be found invariably to agree with the stomach. The energy of the respective bases, quinine and iron, is greatly increased by their union in this compound, and this salt seems to exercise a specific action upon the economy. It is admirably adapted to most cases of debility, to ague, and neuralgic pains; and generally, where a combination of iron and quinine is required, this is the most efficient preparation. Dose, two to five grains. The syrup of citrate of quinine and iron is the most agreeable form in which it can be prescribed for children. The dose of the syrup is from half a drachm to a drachm, in plain or spiced water.

SAGE.

The common garden sage (*Salvia officinalis*) is a plant possessed of tonic properties, as its aromatic odor and bitter taste indicate; an infusion made of its leaves and flowering tops is often taken under the name of sage-tea, and is tonic and astringent; as a gargle, with vinegar, or honey and alum, it is beneficial in inflammation of the throat, or relaxed uvula. The volatile oil, with which the plant abounds, is sometimes prescribed in doses of one or two drops, and is also used as an ingredient in embrocations for rheumatism; pre-

arations of the plant are used to abate the sweating in hectic fever: the dose of the powdered leaves is from twenty to thirty grains.

Another species of sage, called *S. sclarea*, commonly called *clary*, has a pleasant odor, much like that of balsam of tolu, and is used for seasoning soups, etc.; it has antispasmodic and cordial properties.

CHAMOMILE-FLOWERS

Are tonic and carminative, and are useful in indigestion, gout, green-sickness, flatulent colic, and chronic weakness of the stomach and bowels. In such cases they are best given in the form of a cold infusion, or tea, in combination with ginger and carbonate of soda. The warm, strong infusion is emetic. The extract of chamomile-flowers is an excellent stomachic, possessing little stimulus, and favoring the natural action of the bowels, and is, therefore, a convenient and useful addition to other tonics which we wish to give in the form of pills, as preparations of iron, ipecacuanha, carbonate of soda, etc.

The dose of the powder is from half a drachm to a drachm, twice or thrice a day; of the infusion, from one to two ounces; and of the extract, from ten grains to a scruple.

WORMWOOD.

Wormwood is a bitter tonic, of considerable service in indigestion; and it has also been used with advantage in ague and gout. Its powers in expelling worms are well ascertained, and have bestowed upon it the name of *wormwood*. It will frequently bring away the smaller sorts of worms in great quantities. The dose in powder is from one to two scruples, twice or thrice a day. The infusion is made by pouring a pint of boiling water on an ounce of the plant, of which from an ounce to an ounce and a half may be taken twice or thrice in twenty-four hours.

CALUMBA, OR CALUMBO.

The root so called, which is much valued as a stomachic bitter, is that of the *Cocculus palmatus*, a native of the forests on the east coasts of Africa; it has a faintly aromatic odor, a bitter and slightly acrid taste; its active principle is *calumbine*, which may be obtained by means of alcohol or ether. Containing nothing which is incompatible with the salts of iron, its infusion forms a good vehicle for them;

it is prepared by pouring upon five drachms of the sliced root a pint of boiling rain or distilled water, macerate for two hours in a covered vessel, and strain. There is also a tincture, of which a dose may be taken, in water, twice a day. The dose of the former is from one to two drachms; of the latter, from five to ten grains.

Calumba appears to act chiefly upon the mucous membrane of the stomach, and upon the secretion and quality of the bile; being free from astringency, slightly sedative, there is, perhaps, no tonic so well adapted for those of weak and dyspeptic constitutions: to such it may be given in powder, combined with carbonate of soda and ginger, in the proportion of eight drachms of each of the former to two drachms of the latter; taking half a teaspoonful in a wineglassful of water about an hour before or after each principal meal; or it may, perhaps, be more agreeable to add the soda to an infusion of the calumba-root and ginger; this infusion should be made fresh every day, especially in warm weather. (*See Tonics.*)

MERCURY (*Hydrargyrum*).

The compounds of this metal are alterative, anthelmintic, antiphlogistic, antisyphilitic, cathartic, and deobstruent. They are all of them, except, perhaps, the sulphurets, capable of inducing a state of mercurialism, of which the prominent symptom is *salivation*; therefore, their action should be carefully watched. Some of the preparations are corrosive poisons, and all of them may do serious mischief if incautiously used.

Preparations of quicksilver directly promote the secretion of the bile, or its flow into the intestines; they also increase the effect of diaphoretics and diuretics. We give a list of the principal mercurial compounds, their uses and doses:*

Hydrargyrum Bichloridum (Corrosive Sublimate).—One of the strongest poisons known; given in venereal complaints with the greatest advantage, when a quick and general action is required, but its effects are often not permanent; and in chronic rheumatism. A solution of three grains in a pint of water makes a good gargle in venereal sore-throats, or a little stronger for breaking the abscess in *cynanche tonsillaris*; this strength also may be used as a wash for scabies, for tetters, and for destroying fungi. Given internally, the dose is from one-sixth to one-half grain, made into a pill with

* The chemical names of corrosive sublimate and calomel are given according to the old theory of their composition. Recent chemistry calls corrosive sublimate the chloride and calomel a subchloride.

extract of poppies. When taken in poisonous doses, the best antidote is white of egg.

Hydrargyrum Chloridum (Calomel).—In venereal diseases and liver-complaints, sometimes combined with opium; in scrofula, with cicuta; in convulsive affections, with opium, camphor, and assa-fœtida, etc.; in dropsy, with squills, foxglove, and elaterium; in rheumatism, with antimonials, guaiacum, and other sudorifics; as a purgative, in any case not attended with intestinal inflammation, generally with some other purgative; combined with lime-water, makes *black wash*.

Pil. Hydrargyri.—This is the blue-pill, a most effective alterative in a wide range of disorders to which the system and the digestive organs are subject. It may be given in doses of five to ten, or even twenty grains, followed by a purgative, or in smaller doses continuously to obtain the mercurial effect on the system.

Hydrargyrum Iodidum, in strumous affections; dose one grain, gradually increased to three or four, used externally in ointment.

Hydrargyrum Oxidum Rubrum (Red Precipitate).—Seldom, if ever, given internally; used in the preparation of ointments, and applied in this form, or in that of powder, to chancres and foul ulcers, to cleanse and stimulate them; sometimes blown into the eye, in the proportion of half a grain to four grains of sugar, to remove specks on the cornea.

Hydrargyrum cum Creta (Quicksilver and Chalk, or Gray Powder).—Chiefly given as an alterative in cutaneous and bilious affections; dose, five to thirty grains.

These are but a few of the principal forms in which quicksilver is administered and applied; there are many others, for there is, perhaps, no single agent in the materia medica whose uses are more numerous and various; it not only has a specific action, but it appears to quicken and intensify that of any other drug with which it is combined; thus it is that we find it so often in combination with diaphoretics, with diuretics, with purgatives, etc.; perhaps its most remarkable and valuable property is its power of controlling and subduing inflammations of whatsoever part, and its action in this respect is especially marked and rapid in those affecting the eye. But it is on the liver that its most decidedly specific action is exerted; in small doses it stimulates the flow and improves the character of the bile; in larger it causes the bile to flow yet more freely, and carries it through the bowels with a purgative action. Frequently, when the liver is in an overloaded condition, a very small dose of some mercurial preparation, such as calomel, will cause a

very rapid descent of the fluid. When it is intended that mercury shall act upon the system generally, its tendency to purge must be checked by combination with opium, or it will be likely to pass off too rapidly, without producing the desired effect. When intended to affect the liver, Abernethy recommends that it shall be given by itself at night; a five-grain blue pill is best, or the same quantity of gray-powder, and a black draught, castor-oil, or some other liquid purgative, in the morning.

On certain constitutions mercury exerts a peculiar influence, causing in some great irritation, in others deadly faintness and nausea. Children can bear larger doses than adults; indeed, it is often difficult to salivate a child. The stools caused by mercurials are generally of dark olive-green color; particularly is this the case with the young.

IODINE.

This is a crystallized solid substance, found principally in seawater, and in plants and other marine productions; it becomes volatile at a slight increase of temperature, and diffuses itself in the form of a beautiful violet vapor, hence the above name. This is one of the most valuable of therapeutic agents, and is largely employed in its various forms and combinations. We now chiefly obtain this substance from the ashes of the kelp, or sea-weed, which is burnt for the purpose of obtaining alkali; the ashes are heated with sulphuric acid and peroxide of manganese, and the vapor which arises is received in a cold vessel, where it condenses on the sides, and forms the soft, opaque crystals, of a blackish-blue color, and metallic lustre, which constitute the iodine of commerce. It has a disagreeable, suffocating odor, and nauseous taste, and it stains whatever it touches, of a rusty yellow color, which remains on the skin for a considerable period. It dissolves readily in alcohol, but very little in water; its characteristic property is that of giving an intense blue color to starch, of the presence of which it is, therefore, a sure test. United with metals it forms *iodides*, and with hydrogen and oxygen, acids, like bromine and chlorine; in many of its properties it bears a close resemblance to the latter.

Iodine, although only obtained in a pure state of late years, has long been employed as the efficient principle of several therapeutic agents, such as burnt sponge, and certain mineral waters. Its specific action has been only ascertained, with precision, since it has been procured as a distinct principle. Owing to its sparing solubility in water, it is seldom now, however, administered in a pure state,

but rather in the form of some artificial compound, such as the iodide of potassium, its most common vehicle of administration. The diseases in which it has been found most useful are glandular swellings, especially bronchocele or goitre, which rarely resists its continuous action. In chronic rheumatism, and some forms of strumous disease, it is also efficacious. It has been given, too, in cases of poisoning with brucia, strychnia, and veratria—not, however, with such decided success as to warrant our calling it a certain antidote to these formidable poisons. As an outward application, iodine has been of late most extensively employed. In bronchitis and chronic enlargements of the abdominal viscera, especially of the liver, it has proved eminently successful; in the latter case it is advantageously combined with mercury. It may be applied in the form of tincture, painted over with a camel's-hair brush, to enlarged tonsils, and to chronic swellings of the joints, as well as to glandular swellings. It is an excellent emmenagogue, combined with iron, and with mercury is valuable in syphilitic diseases. As a means of dispersing organic exudations, lotions of iodine are much to be preferred to ointments; they should be applied on compresses of lint, saturated with them, and bound over the parts. The following may be recommended as a good form for this purpose:

Take of iodine,	10 grains.
Iodide of potassium,	1 drachm.
Distilled water,	1 pint.

For painting over a glandular or other swelling, the compound tincture of the pharmacopœia may be used; if not strong enough, add iodide of potassium, half a drachm; iodine, ten grains to one ounce of the tincture. It has been found that this substance will dissolve more readily in water to which syrup of orange has been added, than in plain water, and more readily still in that which has tannin in it. Two grains of this latter will, it is said, effect the solution of ten grains of iodine in six ounces of water, a quantity sufficient for most therapeutic purposes; the dose being from one to two grains; so that about a tablespoonful of this mixture might be taken two or three times a day. The action of iodine and its compounds should be carefully watched, as a long train of alarming symptoms will sometimes follow its continued use; among these may be named vertigo, nausea, extreme depression, and syncope, sometimes ending in death. Its chief official preparations, besides its metallic compounds with potassium, iron, lead, mercury, and arsenic, etc., are the compound liquor of potash with iodine; dose, one to four drachms; syrup of iron with iodine, dose, half a drachm to one

drachm, an excellent tonic for scrofulous children; compound tincture of iodine, dose, ten to thirty minims; compound iodine-ointment; and the ointment of iodide of potassium.

COD-LIVER OIL.

This oil is prepared from the liver of the cod-fish, and some other allied species; it has of late years come into very extensive use as a therapeutic agent; it was formerly of good repute in the treatment of rheumatism, but, being extremely nauseous, never obtained general acceptance; this objection is, in a great measure, obviated by the present improved methods of preparation, and the best cod-liver oil, being almost colorless, and free from taste or smell, except a slight fishy impregnation, may be taken by the most delicate stomach. Consumptive patients, apparently on the brink of the grave, have experienced quite a renovation under its influence; the sunken cheeks have again become plump and tinged with the hues of health; the dim eyes have shone with their former brightness, and the dark rim around them has disappeared; the emaciated frame has gathered flesh, and the weak, vacillating step has grown firm and steady as of old. Such, we say, has been the effect in *some* cases; in very many, if not so marked, it has proved decidedly beneficial; so that the dictum of Dr. Williams—"we must pause ere we in future pass the terrible sentence of 'no hope' on the consumptive patient"—is in no want of confirmation. There is some difference of opinion as to whether iodine, bromine, or phosphorus, all of which are contained in cod-liver oil, is the peculiar principle which renders its operation so beneficial in arresting the progress of tubercular destruction of the lungs, in giving firmness to the muscles, and filling up the decayed tissues with adipose matter; but probably all three have a share in the effect produced. In all diseases connected with a scrofulous habit of the constitution, this oil has been used with great advantage; in general debility, its decidedly nutritive properties render it extremely valuable; and in atrophy, or wasting of the flesh in children, where the glands of the belly are knotted and hard, and the veins enlarged, it often effects a cure; in such a case it is given internally, about a teaspoonful twice a day, and also rubbed into the skin of the stomach three times a day. In rickets it is the most efficient of all remedies.

The common dose of cod-liver oil for an adult is one tablespoonful, two or three times a day; sometimes double this quantity is given, but it is always advisable to begin with a small dose, and gradually increase. With regard to the best vehicle for its admin-

istration, this must depend greatly upon individual taste; but milk, orange-wine, ale, or some bitter infusion, cinnamon, or other aromatic water, and cold coffee, may be mentioned as among the best; for children it may be made into an emulsion with yolk of egg and sugar, or disguised in well-sweetened cocoa, in which state it is sometimes taken unknowingly; raspberry-vinegar is not a bad vehicle. About an hour before a meal is the best time for taking this oil; it is then less likely to cause nausea, and more likely to become assimilated with the food. Patients who have become accustomed to it experience a sensation of sinking and faintness when the usual dose is omitted, which fully bears out its character as a nutrient; with some it acts slightly as a laxative, and with others causes a difficulty of breathing, and a feeling of fulness in the chest and head, and even spitting of blood; but these effects are quite exceptional.

Medical men are by no means agreed as to whether the pale or the dark oil is the best; the former appears to contain the largest quantity of iodine, bromine, phosphorus, and salts of lime, soda, and magnesia; and the latter to be richest in the component parts of bile, butyric and acetic acids: the pale is less likely to cause nausea, if it is really fresh and pure, so that it is more generally preferred; although that which is of a light orange-color may be highly recommended, as containing a large proportion of the peculiar principles which render this oil so valuable, and especially of iodine.

SARSAPARILLA.

This drug is tonic and alterative in its properties; sometimes diuretic and diaphoretic; it is chiefly given in secondary syphilis, in various kinds of skin-diseases, in phthisical and scrofulous disorders, and in cachectical and depraved conditions of the system, especially such as depend on old venereal disorders; the form of administration is usually that of the compound decoction, or the liquid extract, which contains a portion of spirit, and will keep almost any length of time; the dose of this is from half a drachm to two drachms in water; of the decoction from three to six ounces; the powder is sometimes given in half a drachm to two drachm doses, but it is generally stale and inert. The simple decoction, which is perhaps as efficacious as any preparation of this drug, is made thus: Digest five ounces of sarsaparilla-chips in four pints of water; let it simmer gently for two hours; then take out the chips, bruise and replace them in the water; boil down to two pints, and

strain. The compound decoction is made by adding to the above quantity, while boiling, sassafras (sliced), guaiacum-wood (rasped), and liquorice-root (bruised), of each ten drachms, mezereon-roots three drachms; boil for fifteen minutes, and strain. These preparations can be made for domestic use, but it is perhaps best to purchase the liquid extract. The virtues of the sarsaparilla appear to reside in a crystalline principle which has been called *sarsaparillin* or *similicine*; besides this principle the root contains a coloring substance, resin, a thick aromatic fixed oil, a waxy substance, chloride of potassium, and nitrate of potash, with starch, of which the proportion is large.

GUAIACUM.

The wood and gum-resin of the *lignum vitæ*, a West-Indian tree, are both used medicinally for the cure of chronic, cutaneous, and syphilitic diseases, gout, and rheumatism. The *wood*, which is very hard and close-grained, is rasped small, and from it is prepared the decoction of guaiacum; dose from two to four ounces; it is also one of the ingredients of the compound decoction of sarsaparilla, and other diet drinks taken to purify the blood, and enters into the composition of the compound lime-water: an extract is likewise made from it, of which the dose is from ten to thirty grains. The gum is given in powder in ten or twenty grain doses, often mixed with magnesia or milk of sulphur: its other officinal preparations are mixture of guaiacum, dose from one to three tablespoonfuls, two or three times a day, and simple and compound or ammoniated tinctures, dose from one to two drachms. Those suffering from chronic gout and rheumatism, especially if of syphilitic origin, cannot do better than take guaiacum-mixture and Plummer's pill—the former prepared thus:

Powdered gums, guaiacum and acacia, of each,	1½ drachm.
Nitrate of potash,	½ drachm.
Tincture of conium, or hyoseyamus,	1 drachm.
Or tincture of opium,	½ drachm.
Cinnamon-water,	6 ounces.

Mix and take two tablespoonfuls three times a day, with one of the above-named pills every night.

If more agreeable to take it in the form of powder, rub down three drachms of each of the gums with one drachm of nitrate of potash, and nine drachms of compound cinnamon-powder; take half a drachm in a little milk three times a day. The nostrum called the Chelsea pensioner is composed of guaiacum, one drachm;

rhubarb in powder, two drachms; cream of tartar, an ounce; flowers of sulphur, two ounces; one nutmeg finely powdered; which are to be made into an electuary with one pound of clarified honey. Two large spoonfuls to be taken night and morning.

Guaiacum is also one of the medicines rated as emmenagogues, whose certainty of action is the most to be relied upon.

ARSENIC.

This is the metallic base of several salts and oxides and preparations therefrom, used medicinally, all of which are highly poisonous, and should therefore be very cautiously employed or administered. The common white arsenic of commerce is properly arsenious acid (*Acidum arseniosum*). In this form arsenic is not often prescribed; the solution with potash, as in Fowler's solution (*Liquor potassæ arsenitis*), being preferred: it is chiefly given in obstinate chronic diseases of the skin, and in intermittent fevers, and other periodic diseases: the doses varying from five to fifteen minims: it has been said that for the first-named class of disease it is never required in larger doses than five minims, given three times a day on a full stomach, the dose to be reduced as soon as the system becomes unduly affected by it; which may be known by itching and redness of the eyelids, swelling of the cheeks and eyes, soreness of the mouth, and a feeling of giddiness; or it may be that there are griping pains in the stomach, nausea, if not vomiting, and headache; in the latter case it should be discontinued altogether, as it is evidently an unsuitable remedy for the individual. It should never be used internally for persons of plethoric habit, or who have any symptoms of *phthisis*; but to such it may be applied in the form of ointment, so that it may act by absorption: one part of the white oxide rubbed down with seven parts of spermaceti-ointment is a good formula.

The symptoms of *poisoning by arsenic* are as follows: First come on faintness and nausea, with a burning pain in the stomach, which continues to increase; then follow diarrhœa, cramps in the calves of the legs, incessant vomiting, the matter discharged being brown and turbid, containing mucus and sometimes blood; the retching is violent, there is great heat in the throat, and intense thirst; the pulse becomes faint and irregular, the skin, if not extremely hot, cold and clammy, the respiration labored and painful, until death ensues, preceded sometimes by coma, or by paralysis, tetanus, convulsions, and spasms of the extremities.

Remedies, to be of any use, must be given *immediately*, mustard

and water, or other emetics, the stomach-pump, milk, lime-water, and white of egg, as much as can be got down; but little confidence, however, can be placed in antidotes; the poison is of so corrosive a nature, that, if suffered to remain in the stomach, it will be pretty sure to do irreparable mischief; therefore all the efforts should be directed to getting it out as soon as possible; excite vomiting by all possible means, and throw in diluents. If the treatment should be successful, and the patient appears to be recovering, administer hydrated sesquioxide of iron, if it can be procured; give a spoonful largely diluted with water, every hour or so.

TARAXACUM (*Dandelion*).

A common plant of the fields in this country, it possesses tonic, alterative, diaphoretic, and diuretic properties, and has long enjoyed the reputation of being beneficial in obstructions of the liver, and in visceral diseases; its action appears to be somewhat like that of sarsaparilla, and it is often given in dyspepsia, dropsy, skin-disease, and cachectic disorders generally. Being easily procured, and of well-established repute, it is one of the plants most frequently used by country people for the cure of their ailments: a decoction is made of the fresh root sliced, about an ounce of which is put into a pint of water; this is boiled down to half a pint, and strained; add to this quantity two drachms of cream of tartar, and take a wine-glassful twice or thrice a day. The most convenient form is the extract, which is prepared by first obtaining the juice from the fresh root by pressure, and then evaporating until it is somewhat thicker than treacle; the dose of this is from ten grains to half a drachm; it is frequently given in combination with stronger diuretics, in disease of the urinary organs. The following is a good form of combination for chronic affection of the liver:

Extract of taraxacum,	2 drachms.
Carbonate of soda,	1 drachm.
Spirit of sulphuric ether,	2 drachms.
Syrup of orange-peel,	$\frac{1}{2}$ ounce.
Infusion of gentian sufficient to make up 8 ounces.	

A tablespoonful to be taken twice a day with two and a half-grain blue-pill, or a five-grain Plummer's pill every night for the first week, then every other night.

In Germany, the poorer people roast the dandelion-roots, and take the decoction of these for coffee, and this article has recently come into use in the United States. The leaves also are very com-

monly used on the Continent as a salad; they are no doubt very wholesome thus taken, and, to some constitutions, beneficial; by these leaves the plant may be easily distinguished, when not in flower, from their deeply-indent ed shape, from whence they obtain the name "lion's tooth" (*dent de lion*).

ALCOHOL.

Pure alcohol is a transparent, colorless fluid, of a pungent taste and fragrant odor; it is lighter and more volatile than water, burns with a blue flame, which becomes yellowish when the spirit is diluted with water, when mixed with an equal bulk of which, it is termed proof spirit; it then has a specific gravity of 0.917, and this is not quite so strong as that used for many tinctures and other pharmaceutical purposes, the strength of which is represented by 0.930, the gravity of pure alcohol being, according to Lowitz, 0.796, although the Leyden College make it 0.815. The pure spirit of commerce is seldom less than from 0.830 to 0.835.

Alcohol is the active principle of all intoxicating drinks, the habitual use of which, according to Dr. Paris, induces "more than half of all our chronic diseases." Brandy, rum, gin, whiskey, etc., are but variously-flavored forms of diluted alcohol; medicinally they are sometimes prescribed, and employed with good effect; brandy has been found especially useful to rouse the system in some cases of extreme debility, and in sinking stages of typhus fever, etc. They are sometimes recommended as nervous stimulants in cases of great depression, but there is always danger that the taking of them may become a confirmed habit, which will grow upon the patient. But the abuse of a thing furnishes no argument against its use, and we have no right to deny to some the pleasure and benefit which they derive from the moderate employment of alcoholic drinks because very many involve themselves in disastrous consequences from taking them immoderately.

Besides the internal administration of alcohol, it is much used in evaporating and other lotions, in gargles, and collyria. It forms the basis of all the tinctures and medicated spirits, and in its several pharmaceutical forms of rectified, proof spirit, and spirit of French wine, is in constant request both commercially and medicinally.

As a poison: when taken in large doses either as spirits of wine, or any of the ardent spirits, such as brandy, gin, etc., exhibiting all the effects which we see in the various stages of inebriety; these are followed by total insensibility, coma, and death;

if the system can be relieved in time of the poison, by means of the stomach-pump or an emetic, the life of the patient may be saved. The best restoratives are ammonia, given in the form of aromatic spirit, and strong coffee, as in case of poisoning by opium.

GIN (*Geneva, or Hollands*).

This is a spirit too well known and extensively used in this country to need any description. Containing a considerable portion of oil of juniper, it acts medicinally as a diuretic: when tolerably pure, it is not unwholesome to those whose urinary organs require stimulating; but, if they are already sufficiently active, it is prejudicial. But gin, as commonly sold, is a vile compound of greatly diluted spirit, with capsicums, or other pungent materials, to give it a fictitious strength; and oil of vitriol and almond-oil, in due proportions, to give it body, and make it bead when poured out; perhaps, too, there may be a little turpentine to make up for the deficiency of the more expensive oil of juniper. Properly it should be made of the spirit procured from barley, or some other grain, and juniper-berries. How it is made, the great distillers, the spirit-merchants, and the publicans, can alone tell. It first came into use as a diuretic, and then grew into favor as a cordial stimulant, and is now the bane of nearly all who use it. In all cases in which gin would be serviceable, a diuretic medicine composed as follows would probably be more so:

Take of oil of juniper,	1 drachm.
Sweet spirits of nitre,	2 drachms.
Oil of cloves,	6 drops.
Simple syrup,	1 ounce.

Water sufficient to make six ounces; take a tablespoonful when required.

EAU DE COLOGNE.

This is a preparation of essential oils, or the herbs which yield them, containing—like lavender and other waters (so called) used chiefly as perfumes—a large amount of spirits. It is named after the place where it originated, and from whence are still sent out more than a million bottles annually, although perhaps not a tenth-part of the water which is sold under the name of eau de Cologne really comes from that city. In the French Pharmacopœia is the following form of preparation:

Take oils of bergamot, citron, and lemon, of each,	3 ounces.
Oils of rosemary, neroli, and lavender, each,	1½ ounces.
Oil of cinnamon,	6 drachms.
Rectified spirits,	24 pints.
Compound spirits of balm,	3 pints.
Spirits of rosemary,	2 pints.

Mix, and, after standing a week, distil twenty-four pints.

The following is more simple, and easily prepared :

Oils of bergamot, lemon, neroli, orange-peel, and rosemary, of each,	12 drops.
Cardamom seeds,	1 drachm.
Rectified spirits,	1 pint.

Mix, and put by for use; it improves by keeping.

The grateful scent of eau-de-Cologne, and the delicious coolness produced when it is rubbed over the forehead, or other heated part, and blown upon, have long rendered it a favorite with sick persons; it is also taken internally as a stimulus in nervous debility, and the faintness which frequently overcomes weakly persons, especially in hot weather: from twenty to thirty drops in a little water, or camphor mixture, may be taken as often as required.

CAJEPUT-OIL.

This is an oriental medicine of great credit in the East, for the cure of cholera. It is a powerful stimulant and antispasmodic; and now that the true nature of cholera is known, and physicians rely on antispasmodics for the treatment, we can understand how cajeput-oil obtained credit as a curative, though for a long time its influence over cholera was thought to be only in the fancy of dreaming Hindoos. Cajeput-oil causes a sense of warmth in the stomach, that extends to the whole system—the pulse becomes stronger and more frequent, and perspiration is induced. The dose is from two to six drops. It has been used externally as a counter-irritant in rheumatism.

CAPSICUM.

The pungent berries of *Capsicum fastigiatum* are employed medicinally; they are powerfully stimulant, and are useful in atony of the stomach, and the dyspepsia of gouty and debilitated subjects. They are taken also with a vegetable diet, to prevent flatulency, and for gargles in malignant sore-throats, and relaxed states of the uvula and other organs of that part, as well as in chronic hoarseness. The dose of the powder is from two to eight grains; of the tincture, from

ten to sixty minims; there is a concentrated tincture, good as an external stimulant for chilblains, and a capsicum lozenge, of which one may be put into the mouth and allowed slowly to dissolve, about three times a day. Persons who are subject to cold feet are sometimes recommended to wear socks dusted with *cayenne pepper*, which is a mixture of the dried pods of several species of capsicums, but more especially of the *Capsicum baccatum* (bird pepper); there is commonly common salt mixed with this, and some coloring matter not always of an innocent nature, red lead having been detected in the composition; if the presence of this poisonous ingredient be suspected, boil some of the powder in vinegar, filter the solution, and add to it a little sulphuret of soda; should lead be present, there will be a white precipitate, which, on being dried, exposed to heat, and mixed with charcoal, will yield a globule of the metal.

PEPPER.

The pepper plant, belonging to the natural order *Piperaceæ*, is found in nearly all tropical countries, but chiefly in Java, Sumatra, Borneo, Malacca, and Hindostan. Pepper contains piperin, a very acrid concrete oil, on which the properties of the seeds are supposed to depend; a balsamic gum; a gummy coloring matter; extractive matter, analogous to that of the leguminous plants; gallic and tannic acid; starch; basorin; lignin; and a small quantity of earthy and alkaline salts. Piperin is in the form of colorless, transparent crystals, and without taste; it has been recommended as a febrifuge, but alone appears to have little or no action on the system. Pepper is well known as a warm, carminative stimulant; it strengthens the stomach, assists digestion, and gives tone to the stomach when taken moderately. Medicinally, we use pepper chiefly as a remedy for dyspepsia and flatulence. It is used, too, as a carminative adjunct to other medicines, and the stimulus of a pepper plaster, has, like one of mustard, proved beneficial in *tic douloureux* and other neuralgic pains. An extract made from pepper will cure intermittent fever, when quinine is not accessible; and piperin, added to the dose of quinine, makes its action more effective and certain.

CINNAMON.

Cinnamon bark is an agreeable astringent and cordial, and as such is used with advantage in dysentery and looseness proceeding from a weakened and languid state of the bowels, and in indigestion and chronic nervous debility. It is of service in discharges

of blood from the uterus. It is principally used, however, as an agreeable aromatic adjunct to more powerful articles, as Peruvian bark, etc., which it causes to sit easier on the stomach. The compound powder of cinnamon is a valuable cordial and aromatic, and is given in doses of from eight to twenty grains.

Oil of cinnamon is a powerful stimulant and stomachic, and is used as such in cramps of the stomach, flatulent colic, and nervous languor. The dose is from one to three or four drops on a lump of sugar.

ERGOT OF RYE.

Spurred rye, commonly called ergot of rye, is a diseased production which grows on the ear of rye, barley, and wheat, but most frequently on that of rye. The diseased grain varies much in length, sometimes being perfectly concealed within its husk; at others, growing to near an inch and a half; its usual length is about an inch, and its general appearance resembles much the spur of the cock.

This substance has been known to possess deleterious and poisonous qualities, for more than seven hundred years. If taken in considerable quantity, mixed with the healthy grain as food, it produces giddiness, spasms, and convulsions, on which gangrene and sloughing of the lower limbs supervene. From this cause, an epidemic raged in the kingdom of Hesse, in 1596, and in both Saxony and Sweden, in 1648-'49, and, twenty years after, in Blois and Montargis, in France. In 1777, a similar epidemic from the same cause ravaged Cologne and its neighborhood, and since that time, in different years, its baneful influence has been more or less remarked in France. Some persons thought the deaths might be owing to great vicissitudes in the weather and temperature; but the various experiments of a M. Tessier, on animals removed out of the influence of such exciting causes, fully prove the accidents were attributable to the grain itself.

The action of this medicine as a specific uterine stimulant gives it great value in certain cases of labor. When there is no disproportion between the size of the head and the pelvis, and no obstruction to the passage of the child, and when labor comes to a standstill simply through the mother's exhaustion, or failure of uterine pains, then give the ergot; it will cause powerful expulsive efforts. But, if the effort thus stimulated fails to expel the child, the child will be poisoned and destroyed by the ergot. Therefore, never give it unless the child is in such position that four or five hard pains will insure delivery.

The dose of the ergot of rye in powder (which is of a perfect ash color) is from five to twenty or twenty-five grains. The ordinary dose is fifteen grains, which may be repeated in a quarter of an hour, if the uterine action has not become apparent. It may be given in infusion or in tincture; a drachm of the tincture is a full dose.

GINGER

Is valuable for its pungent, aromatic, heating, stimulant properties. In tincture, infusion (ginger-tea), or in syrup, it acts equally with great efficacy, as an intestinal stimulant. It is commonly used as a remedy against flatulent colic, and there is hardly a more effective diuretic in use than the hot ginger-tea that any good nurse will prepare from the common ground ginger.

ETHER.

A highly volatile fluid, produced by the action of acids on alcohol; thus we have acetic, hydrochloric, or muriatic, nitric, nitrous, and sulphuric ethers, and of some of these more than one form of preparation. The first of these (*Ether aceticus*) is much employed on the continent—internally, as a mild stimulant, diaphoretic, antispasmodic, and nervine; the dose is from five to thirty or forty drops; externally, in stimulating liniments; and, by itself, in gentle friction, for gout. The second (*E. hydrochloricus*) is diuretic and diaphoretic, in doses of ten to thirty minims; there is also a spirit of muriatic ether not so strong, the dose being from twenty minims to one drachm. The third (*E. nitricus*) and the fourth (*E. nitrosus*) are both mildly stimulant, and more decidedly diuretic than the others, if the patient is kept warm; the dose of the latter is from ten to twenty minims; the former, which is generally sold in a diluted form, as sweet spirits of nitre, may be given in drachm doses; it is a favorite remedy in colds, especially if attended with febrile symptoms and obstructions of the urinary passages. The fifth (*E. sulphuricus*) is, in its diluted form of spirits of sulphuric ether, the kind to which the name ether is most generally applied; it is a diffusible stimulant much employed, on account of its rapid effects, in spasmodic asthma, cramp of the stomach, colic, hiccough, palpitation, fainting, and other spasmodic and nervous affections; the dose is from twenty minims to half a drachm. Applied externally, it produces cold by its rapid evaporation; or, if the vapor is confined, it acts as a stimulant and rubefacient. Its inhalation produces insensibility to pain, and, before the introduction of chloroform, it was much used in painful

and protracted operations. There is a compound spirit of sulphuric ether, sold under the name of Hoffman's anodyne solution, which was once extensively used as a nervous stimulant; the dose, half a drachm to one drachm. There is also an aromatic spirit of ether, prepared with spices—a grateful but not a very useful stimulant. There is, too, an ethereal oil (*Oleum ethereum*) which is only used as an ingredient in the compound spirits of ether. Chloric ether is a solution of chloroform in alcohol.

HOFFMAN'S ANODYNE.

This is the compound spirit of sulphuric ether of the shops, and is stimulant, narcotic, and antispasmodic. It is used for the same purpose as the common sulphuric ether, and is sometimes useful in allaying irritability and disposing to sleep, in the latter stages of typhus and other malignant fevers. It is less exciting than simple ether. When united to opium, for the purpose of procuring sleep, it renders the operation of the opiate more pleasant, and counteracts its deleterious properties. The dose is from half a drachm to a drachm, in any simple fluid vehicle.

All ethers should be kept in closely-stopped phials.

CHLOROFORM.

This is a colorless, heavy liquid, with a peculiarly agreeable, fruity, ethereal odor. When rubbed on the skin it quickly evaporates, and, if pure, leaves no odor.

Its action when taken internally is narcotic and antispasmodic, like that of ether; but it has a more distinctly marked sedative effect, and in large doses it diminishes sensorial power, and produces drowsiness, without exhilaration or acceleration of the pulse. It has been employed in spasmodic affections, such as spasmodic coughs, asthma, and cholera, and also in insanity; but we do not yet know enough of its powers to say much in favor of them.

Its chief employment is in a form of vapor, for the production of insensibility during severe labor, or surgical operations; and also during the passage of gall-stones, and in violent attacks of colic, in which its use has been sometimes followed by great relief. But it requires to be used with extreme caution, and is not at all suitable or safe in domestic practice. Indeed, it cannot be safely administered except by a practised professional man. The proper mode of administering chloroform is on a napkin or handkerchief. The cloth should be wet with a small portion at a time, and this applied to the

nostrils. By this means the person inhaling the chloroform gets at the same time sufficient air.

To recover a person from an overdose, the best treatment is to sprinkle a little cold water on the face—to rub the limbs in the direction of the veins toward the heart—to open all the windows and let in as much fresh air as possible—to turn the patient over on his right side, and fan fresh air with a fan on his chest and neck, and to place a teaspoonful of brandy now and then on the tongue. The machinery of the heart is at a stand-still, and, if we once excite that, all is right. Attempts at recovery ought not to be given over for at least two hours.

SAVIN.

The leaves of the *Juniperus sabina*—an evergreen cultivated in the United States as an ornamental shrub—contain an essential oil that is an effective uterine stimulant. The medicine may be given in the powdered leaves, in a decoction, or in extract. It is an effective emmenagogue in amenorrhœa, and regulates the action of the uterus in passive hæmorrhage and in menorrhagia. The powder of savin may be given in from five to twenty grains, two or three times a day, in combination either with other emmenagogues or with aromatics.

AMMONIA.

A volatile alkali, most commonly seen under the form of carbonate and subcarbonate, the volatile salts of commerce. Its medicinal properties are stimulant, diaphoretic, antispasmodic; in large doses, emetic. It is given in convulsive disorders, gouty acidities of the stomach, nervous affections, debility, the flatulency and acidity arising from dyspepsia, and the gastric affections which result from habits of intemperance and debauchery. Combined with opium, it is good in chronic diarrhœa, and, in large doses, in the muscular relaxation of long-standing rheumatism, in hoarseness, or a relaxed state of the throat and bronchial organs. It has been recommended in typhus fever; its use as a stimulant and restorative in syncope and hysteria, in the form of smelling salt, is well known. The dose of the carbonate of ammonia is from five grains to a scruple in bitter infusion, camphor mixture, or any convenient vehicle; the officinal preparations into which it enters are: liquor of subcarbonate of ammonia—dose, twenty minims to one and a half drachm; liquor of acetate of ammonia, two to six drachms; ammoniated copper, one half to five grains; liniment of the subcarbonate of ammonia, for

external use only. The second of these is a febrifuge and diaphoretic, often prescribed in combination with other medicines of its class. It is also a good application for bites and stings, and inflammatory eruptions.

The aromatic and fetid spirits of ammonia (*spiritus ammoniæ aromaticus et fetidus*) of the pharmacopœia are both much used as nervous stimulants and antispasmodics; dose, half a drachm to a drachm in water or camphor mixture; they are valuable additions to tonic mixtures, the former, especially, for lowness of spirits; and the latter, where there is flatulency. The strong liquor of ammonia is too caustic for internal administration, but is sometimes given, as is also the common hartshorn (*liq. volatile cornu cervi*) in hysteria, etc. Most usually and properly, however, these preparations are employed for external application only; their pungent vapor is applied to the nostrils of fainting persons, and they are mixed with oleaginous and other substances for liniments, to produce counter irritation.

The compound tincture of ammonia (*tinctura ammoniæ compositus*) is composed of gum mastic, oil of lavender, rectified spirits, and strong solution of ammonia: this is the old *eau de luce* with the oil of amber omitted; it is a good stimulant and antispasmodic; dose, from five to ten minims in water. There are several other ammoniated tinctures in the pharmacopœia, such as castor, colchicum, guaiacum, opium, valerian, and various other officinal preparations into the composition of which ammonia enters, such as ammoniated iron, ammonio-chloride of mercury, acetate, citrate, and tartrate of ammonia; these neutral salts are all used as diaphoretics, are given in febrile diseases, and in dropsy and rheumatism. The acetate, as well as the carbonate and pure ammonia, is sometimes taken by drunken persons to recover them from the effects of their potations; the former is now only given in the form of *liquor ammonia acetatus*; the popular name of this was formerly *spirit of Mindererus*.

The other ammoniacal salts employed in medicine are—the nitrate, nitro-sulphate, phosphate, sulphate, hydro-sulphuret, and succinate of ammonia: the first is refrigerant and diaphoretic—dose, from three to twenty grains; equal parts of this and carbonate of soda form a powerful freezing mixture; the second is given in typhoid fevers—dose, about twelve grains; the third is good in some cases of rheumatism—dose, three to ten grains; the fourth is diuretic, stimulant, and resolvent—dose, fifteen to thirty grains; the fifth is poisonous in large doses; in small, say from four to eight drops, it is good in catarrhal complaints, diabetes, and gout; the sixth is anti-

spasmodic; it is usually given in the form of *liquor ammoniæ succinatus*—dose, from fifteen to ten drops. The hydrochlorate, or muriate of ammonia, is an article much employed in the useful arts, under the name of sal ammoniac; it is given in inflammation of the mucous membrane, when the more active stage has passed, and in chronic bronchitis; also in intermittent fever, and chronic enlargement of the prostate—dose, from five to twenty grains every three or four hours; its action requires to be carefully watched in persons of feeble constitutions, and those subject to hæmorrhages. It makes a good lotion for indolent tumors and chilblains; mixed with nitrate of potash, or saltpetre, is powerfully refrigerant, and may be employed with advantage in gargles, which see.

AMMONIACUM.

Commonly called gum ammoniac, a resinous gum which exudes from the *Dorema ammoniacum*, a plant of the natural order *Umbelliferae*.

This gum is stimulant, antispasmodic, and expectorant; in large doses, gently purgative, and sometimes diuretic; it is useful in asthma, whooping-cough, visceral obstructions, and in some stages of phthisis, and in mesenteric obstructions, after the exhibition of gentle aperients. Dissolved in nitric acid, it is given with great advantage to promote expectoration, where large accumulations of phlegm are present; while externally it is useful as a discutient and resolvent in scirrhus tumors and indolent ulcers. Its chief official compounds are mixture of ammoniacum—dose, one-half to one ounce; compound squill pill, ten grains to one scruple; plaster of ammoniacum with quicksilver, and gum plaster. Rubbed down with cold water, which would seem to be its proper solvent, it makes a milky fluid, and, if to a pint of this be added the yolk of an egg, with two drachms of tincture of squills, and half an ounce of syrup of poppies, and the same of paregoric elixir, it makes an excellent cough mixture.

POTASH.

Many of the preparations of this substance are used medicinally, and are justly esteemed as among the most efficacious of remedies.

The *caustic*, or *fused potash*, is powerfully escharotic, and is sometimes employed in the formation of issues and in the destruction of extraneous growths; being combined with lime, it is more manageable, as well as effectual.

Acetate of potash is mildly cathartic, diuretic, and deobstruent;

it is useful in febrile diseases, dropsies, icterus, and visceral obstructions—dose, from one to three scruples; as an aperient, from two to three drachms.

Carbonate of potash is diuretic, antacid, and deobstruent; useful in dropsy, acidity of the stomach, and glandular obstructions; dose, ten to thirty grains, properly diluted. One scruple, dissolved in eight ounces of water, and four drachms of lemon-juice, make a pleasant effervescent draught.

Bicarbonate of potash has the same properties as the last, but is less acid.

Iodide of potassium is much used in secondary syphilis; it is a good alterative, and very serviceable in skin diseases and vitiated states of the system generally; the dose is from two to ten grains.

Nitrate of potash, or saltpetre, is diuretic and refrigerant; in large doses, purgative; externally, cooling and detergent. Much used in rheumatism, dropsies, fevers, herpetic eruptions, active hæmorrhages, gonorrhœa, etc. A small piece allowed to dissolve in the mouth often removes incipient cynanche tonsillaris. Hence its utility in gargles.

Sulphate of potash.—This is the *Kali vitriolatum* of the old pharmacopœias. It is deobstruent and purgative, and is employed in visceral obstructions. As a purgative it must be taken in half ounce doses; as a deobstruent, from one to three scruples.

Sulphuret of potash is expectorant, diaphoretic; externally, detergent. Dose, from five to fifteen grains, in pills, twice a day.

Supersulphate of potash is refrigerant and purgative. Given in cases where it is desirable to exhibit sulphuric acid, and at the same time open the bowels. The dose is from one scruple to two drachms.

Supertartrate of potash, commonly called cream of tartar, is mildly purgative, refrigerant, and diuretic. Dissolved in water, with a little white wine, sugar, and lemon-peel, it makes the pleasant diet drink called Imperial. Dose, one to three drachms, combined with one scruple of borax, to excite the kidneys; to open the bowels, four to eight drachms.

SODA.

Many preparations of this substance are used medicinally; in its general action it is antacid and antilithic, diuretic, diaphoretic, and antiphlogistic; it is given in dyspepsia, heartburn, flatulency, gouty and rheumatic affections, lithic deposits in the urine, coughs

and mild inflammations. We give a list of its principal forms of administration:

Carbonate and bicarbonate, the latter being formed by saturating the former with carbonic acid gas; it is more generally used than the carbonate, being milder and less irritating; dose, from one to ten grains for children, from the latter quantity up to a drachm for adults; effervescing draughts and soda water are prepared from this.

Acetate, Citrate, and Tartrate.—The first is a white soluble salt, with a pungent bitter taste; given in doses from a scruple to a drachm as a diuretic, from two to four drachms as a purgative; the second and third are formed when an effervescing draught is made of the carbonate with citric or tartaric acid.

Biborate. (See *Borax*.)

Potassio Tartrate. (See *Rochelle Salt*, and *Seidlitz Powders*.)

Phosphate.—Made by adding a solution of the carbonate to one of the superphosphates of lime obtained from bone earth; this is a mild saline cathartic, having little taste; it is therefore less likely to cause nausea than some others; it may be safely given in fevers, and inflammatory affections even of the bowels, and to pregnant women; it is a good solvent for lithic deposits, and is therefore useful in gouty and rheumatic disorders; it is given to rickety children, with the intention of supplying the deficiency of phosphoric acid in the bones. Dose, as an antilithic, etc., from one to two drachms; as a purgative, from half an ounce to three times the quantity, in gruel or broth.

Sulphate and Hydrosulphate.—The first of these substances has been recommended for destroying fungous growths in the stomach and elsewhere. The dose is from half a drachm to twice or thrice that quantity. The hydrosulphate is used in photography as a solvent for iodide of silver; it is also used to destroy parasitic vegetation in the same way as the former preparation. On the continent it is given as an alterative in skin diseases, and it may be given as a purgative in the same way as the sulphate—dose, ten grains to a drachm; as a cathartic, two to four drachms.

Chloride of Sodium. (See *Common Salt*.)

Chlorinated soda owes its properties to the larger proportion of chlorine which it contains; it is a good antiseptic and deodorizer, and is sometimes administered as a stimulant and anti-putrescent in typhus and other malignant diseases, as well as in chronic affections of the liver. Externally, it is applied, largely diluted, to foul, indolent ulcers, and the sores caused by some cutaneous diseases; it is also used as a gargle in putrid sore throat, and a mouth-wash, where there is fetid breath from decayed teeth or ulcerations, as well as in local baths for hepatitis, etc.

There are other preparations of soda which are sometimes employed medicinally; but the above are all we need mention, except soda water, which, when properly made, contains about twenty grains of the bicarbonate to the half pint, and is strongly impregnated with carbonic acid gas; it is best prepared in a machine, or a gazogene, although it may be prepared for immediate use by dissolving two scruples of bicarbonate of soda in half a pint of water, and adding half a drachm of tartaric acid.

LIME.

Lime in *lime-water* (*liquor calcis*) is given internally as an astringent, antacid, and alterative in diarrhœa, vomiting, heartburn, and other irritations of the stomach and bowels, resulting from acidity. Acting as a solvent upon the mucus, it is occasionally given to dislodge worms; and it will sometimes, when added to a milk diet, enable a weak stomach to tolerate that which it would not otherwise be able so to do. A little milk mixed with it renders it less acrid and unpalatable than it naturally is. Lime-water may be easily prepared for family use, thus: Take of unslaked lime about half a pound; fresh rain or distilled water, twelve pints; first, slake the lime with a little of the water; mix it up well, adding gradually the rest of the water; then, put the whole into a well-stopped bottle; when wanted for use, pour off the clear liquor. Equal quantities of this and olive-oil make an excellent application for *burns*.

Carbonate of lime (*calcis carbonas*) is used in the form of prepared chalk, prepared oyster-shells, and crabs'-claws, as an antacid and astringent, for diarrhœa, heartburn, and acidity of the stomach.

Chloride of lime is extensively used in solution as a disinfectant; it is also sometimes administered in putrescent fevers, as a stimulant and antiputrescent; largely diluted, it is applied to foul, indolent ulcers, and to some forms of cutaneous diseases; it also makes a good gargle in putrid sore throat, and a mouth-wash, where there is fetid breath from decayed teeth or ulcerated mouth, and a local bath in hepatitis. This is the common bleaching salt of which the bleaching liquid is made.

Phosphate of lime is strongly recommended by some in rickets, scrofula, diarrhœa, ulcerations, excoriations of the skin and bowels, and general waste of the tissues of children; it also promotes the cicatrization of ulcers and the union of fractures; but in the latter case should not be given too freely, lest the callus be too abundant, so as to cause permanent deformity of the limb; the dose for adults

is from four to six grains; for children, two or three grains, three times a day.

Sulphuret of lime (*calcis sulphuretum*) is sometimes prescribed in skin diseases, gout, and chronic rheumatism; it is alterative, stimulant, and diaphoretic, and, in doses of twenty grains, is given as an antidote to metallic poisons; the common dose is from four to eight grains. It is chiefly used, however, in the composition of sulphur baths, being, for this purpose, more economical than sulphuret of potassium. To prepare a bath, two or three ounces are dissolved in the water, and from twenty to forty drops of sulphuric acid added.

The general action of lime upon the human system varies according to the form in which it is exhibited; thus quick-lime is escharotic, causing inflammation, and often decomposition, of the part which it touches; when slaked, and in a state of great dilution, as in lime-water, we find that it scarcely has any immediate or direct action; it merely combines with and neutralizes the acids of the stomach, and, if in considerable quantities, absorbs the mucous and other secretions, checking also those of the organs with which it is brought into contact. After it has been absorbed into the system, it appears to augment the secretions of the kidneys, and to keep down the excess of uric acid. Altogether, it is one of the medical man's most valuable adjuncts.

OPIUM.

This is the partially dried juice of the white or eastern poppy—the *Papaver somniferum*. It is obtained by cutting the unripe capsule, from which a white juice exudes, and appears in the form of tears on the edges of the incisions; this is scraped off, put into earthen vessels, moistened with saliva, and then worked up, with a wooden spatula, in the sun, until it attains a proper consistency; it is then formed into cakes, and wrapped up in tobacco or poppy leaves, in which state it is the opium of commerce, having, by exposure to the air, assumed a dark color. This is, perhaps, the most important drug in the whole range of materia medica; applied externally, it acts as a sedative, lulling pain; given internally, in moderate doses, its first effect is that of an excitant; it quickens the pulse and increases the heat of the skin; but these symptoms are soon followed by a diminution of sensibility and a tendency to sleep; if pain is present, it is abated or altogether banished, irritation is diminished, and the muscular system relaxed; the secretion of the bowels is lessened by it, but that of the skin increased, and thus it acts as a sudorific. When taken continually in small doses,

it causes a kind of intoxication; in overdoses it is a narcotic poison, causing deep sleep, with contraction of the pupil of the eye, which results in coma and death.

Opium is undoubtedly the best anodyne and soporific with which we are acquainted; but on certain systems its action is directly opposite to that which we commonly look for; therefore, it is necessary to watch its effects very carefully. Bearing in mind that its primary operation is that of an arterial stimulant, we should avoid giving it in states of cerebral excitement; a parched tongue and a dry skin should generally forbid its use; but if there is only moderate fever, with a moist skin, and no cerebral disorder, it may be safely administered to alleviate pain and subdue irritation: in bronchitis, combined with camphor and ipecacuanha—as in paregoric and Dover's powder; in cancer, delirium tremens, and all neuralgic disorders, it is constantly prescribed; in convulsive disorders, it is given as an antispasmodic; in many cases, as a diaphoretic; and in dysentery and diarrhœa, alone, or combined with astringents, there is no medicine so good as this.

The narcotic properties of this drug are chiefly owing to the alkaloid morphia; of this, good opium contains about twelve per cent. It is somewhat less stimulating in its action than the juice of the poppy, of which it is the most active principle, in combination with meconic acid.

One grain of morphine is equivalent to six grains of opium; and, where one grain of opium is given as a dose, the analogous dose of morphine would be one-sixth of a grain.

The common dose of opium for an adult is from one to three grains; for children, it should be given in very minute doses, if at all, and is best avoided altogether. Opiates should never be given to the young, except there is a pressing necessity for them, and then very carefully, and not often.

There are many official preparations of opium; we give a list of the principal, with their doses: extract, one-half a grain to three grains; pill, five to ten grains; the same, with calomel, five to ten grains; lozenges contain each one-tenth of a grain of the extract; tincture (laudanum), ten to thirty drops; ammoniated tincture, about one drachm; wine, ten to sixty minims.

There are several preparations which owe their chief activity to the opium which they contain, although the name of the drug does not appear in their titles: such are the compound powders of ipecacuanha; the compound ipecacuanha pills, and pills of ipecacuanha with squills; also, the compound soap and storax pills; the compound powder of chalk with opium, much used in dysentery and diarrhœa; and the compound tincture of camphor—paregoric elixir.

Opium-eating has in this, as in other countries, assumed the character of a disease; by many persons it is carried to a great extent. Those who are habituated to the use of this deadly drug require constantly increasing doses, and become in time, like spirit-drinkers, complete wrecks both in body and mind. They generally begin with small quantities, just enough to lull bodily pain, or soothe mental disquietude; but the habit, if encouraged, grows upon and eventually enslaves them.

BELLADONNA.

This is the deadly nightshade, a very poisonous plant. It has a purple, bell-shaped blossom, about an inch long, and oblong, pointed leaves, growing on short stalks, generally in pairs; the stem is upright, stout, and rather hairy, sometimes altogether green, but oftener tinted with red; the berries are about the size of wild-cherries, of a dark-purple color, glossy, sweet, and not unpleasant to the taste; hence they have been often eaten by children, ignorant of their deleterious qualities, with fatal results.

The leaves, roots, and berries, indeed every part of this plant, are powerfully narcotic, and act in some cases as a diaphoretic, diuretic, and laxative. Medicinally, it is employed to alleviate pain, great nervous excitement, and spasms; it is also useful in neuralgic and convulsive affections, as well as in rheumatism, dysmenorrhœa, etc. Its powerfully poisonous nature, however, renders great caution necessary in its administration, and it should never, on any account, be resorted to by unqualified persons. Dryness and constriction of the throat, dimness of sight, and giddiness, are the symptoms of the necessity for its discontinuance. The following are its officinal preparations, with their doses:—Powdered leaves, one grain, once or twice a day, gradually increased to two or three grains, under careful supervision; the powdered root is sometimes used—it is thought to be rather stronger; extract, from one-eighth to one-quarter grain, twice a day—for a child, one-twelfth grain; alcoholic extract, from one-sixth to one-quarter grain; tincture, from five to twenty minims, equal to from one-half grain to two grains of the dried leaves; atropine and sulphate of atropine, the active principle of belladonna, is seldom given internally, and when so given the dose should not exceed the sixtieth part of a grain.

For external use it is employed in the form of cerate, cataplasm, liniment, lotion, oil, plaster, solution, ointment. The vapor of the decoction is sometimes inhaled to relieve asthma, and the extract is applied to relieve pain, and dilate the pupil of the eye.

STRAMONIUM, OR THORN-APPLE (*Stink Weed*).

This is an acrid narcotic poison, and appears to exercise much the same influence on the human system as belladonna. It is sometimes given for the purpose of quieting the mind during violent paroxysms of insanity. The claim which was some years since set up for it, as a specific in severe chronic pains of the head and other parts of the body, may be well disputed, and its dangerous nature should prohibit its internal administration in any cases to which other remedies can be applied. When given it should be in the form of tincture or extract—dose of the former, from ten to twenty minims twice a day, in water; of the latter, from one-quarter to one-half a grain, which may be gradually increased to four grains in twenty-four hours.

Smoking the herb, after the manner of tobacco, sometimes affords relief in spasmodic asthma; this has become a common practice of late, and with some persons it has proved very mischievous; it may be safely followed, although not to excess, by those with whom it produces no sensation of giddiness, or other bad head-symptoms. The poorer Turks smoke this instead of opium, and the Ceylonese, when asthmatic, have done so time out of mind.

HYOSCYAMUS.

This is a strong narcotic poison, the leaves and seeds being chiefly used for medical purposes; the latter are the most active. There are two cultivated varieties of this plant, one annual and the other biennial; the latter is considered the most active. The plant which grows wild on waste and ruinous places is commonly about three feet high, with a hairy stem, and large, deeply-indented leaves of dull, sickly-looking green. It bears, from June to August, dull yellowish-white blossoms, thickly marked with purple lines; it has a peculiarly fetid and unpleasant odor. This plant is much used in modern medical practice, as it is found to allay pain, and subdue nervous excitement, without confining the bowels, and acting otherwise prejudicially, as opium often does; in irritable affections of the lungs, bowels, and other organs, its sedative properties render it extremely valuable. The dose of the powdered leaves is from one-half a drachm to two drachms; of the tincture, one-half a drachm to two drachms; of the extract (the most common form of administration), from one to five grains. There are also cataplasms, plasters, and oil of hyoscyamus, intended for external use. In over-doses, henbane causes delirium, coma, and death, and its operation is in general very rapid.

These seeds contain an alkaloid principle called hyosciamine, combined with malic acid. It is in the form of transparent, colorless, needle-shaped crystals, without odor, and with a disagreeable taste. The root of the plant has been mistaken for chicory, and it is related that the whole inmates of a convent once were victims to such a mistake. It is violently emetic, and necklaces are sometimes made of it, to be worn by children subject to convulsions, under the false impression that they will effect a cure; these roots are biennial, and are more energetic in their action the second year than the first.

CONIUM.

This is a powerful narcotic poison; this principle residing chiefly in the leaves and seeds. The roots are said to have, when boiled, very much the taste of parsnips; but we should not recommend any of our readers to make a meal of them, as it is likely that, in certain states of the atmosphere, or conditions of growth, they too may be poisonous. We give conium as an anodyne, antispasmodic, and deobstruent; but, in scirrhus and cancerous diseases, only as a palliative; also in pulmonary irritation, whooping-cough, neuralgia, chronic rheumatism, and all cases in which sedatives are likely to be of service; in skin diseases and enlarged viscera, too, it is given, and several other diseases. The dose of the leaves, dried and powdered, is two or three grains, gradually increased until slight nausea, or giddiness, is produced; of the extract, from two to three grains, once a day, increased as above; of the compound pill, from three to five grains, two or three times a day; tincture, from twenty to forty minims. There are two other preparations of this plant, but they are very rarely employed. The ointment and plaster are anodyne and resolvent, and the dried leaves, mixed with a carrot or other poultice, and applied twice a day, correct the fœtor of a cancerous discharge in a very short time, and alter the discharge into good pus.

The activity of conium is much diminished by acids; hence, in a case of poisoning by this plant, vinegar would be a good and easily procured remedy; of course, the stomach should be relieved of as much of the poison as possible by emetics.

HOPS.

The Strobiles of Humulus Lupulus.—They contain several elements of activity; thus the bitter principle is tonic, the aromatic warm and stimulating; they are also astringent and slightly ano-

dyne, so that a pillow stuffed with them is considered to promote sleep, and a fomentation to allay the pain and irritation of angry tumors. They yield an aromatic oil, and a substance called lupuline, in which the bitter property resides, that is, the tannin, and to a considerable extent their peculiar aroma also. We find them in the pharmacopœia in the form of extract, infusion, and tincture, which we give in cases of gout and rheumatism, and diseases of the stomach, where other anodynes could not be taken. The dose of the infusion is from one quarter of an ounce to two ounces; of the extract, from ten grains to twenty; and of the tincture, from half a drachm to one drachm; the second is made by infusing one ounce of the flowers in two pints of boiling water; and the third, by macerating six ounces of the flowers in two pints of proof spirit. The highly-hopped pale ale or bitter beer is a good medicinal tonic; but its regular use for a lengthened period is not desirable, except in very warm climates. Heated in a flannel bag, hops are a common remedy for toothache and neuralgic pains, and the young shoots of the plant are in some places eaten like asparagus, for which they form a tolerable substitute.

CAMPHOR.

Camphor is a concrete vegetable juice, white, brittle, and of a very peculiar, fragrant, penetrating odor, and bitter, pungent, and aromatic taste. It is so extremely light that it floats upon water, and is extremely volatile and inflammable, burning with a brilliant light and much smoke; it is soluble in water to the extent of about half a grain to an ounce; alcohol will take up half the weight of the gum; oils, both fixed and volatile, will dissolve a considerable quantity, especially if their temperature be raised; sulphuric and other ethers are among its most potent solvents, but the most so of any is strong acetic acid. It may be suspended in mixtures by trituration with sugar, almond emulsion, mucilage, or yolk of egg: if rubbed down first with a small quantity of spirit, it readily blends with any desirable liquid. In its medical properties, camphor is diaphoretic, antiseptic, stimulant, antispasmodic, narcotic, and externally anodyne. It is good in typhus, confluent small-pox, and all fevers and eruptions of the typhoid class; also in measles, febrile delirium, hiccough, asthma, hysteria, epilepsy, atonic gout, mania, melancholy, and acute rheumatism, etc. It exhilarates in moderate doses, and raises the pulse without producing febrile symptoms; it also promotes perspiration, and, in certain states of the body, it induces sleep when opium fails to do so; but its effects are transient,

and therefore it requires frequent administration. It is, to a certain extent, a corrective of the bad effects of drastic purges, diuretics, powerful stimulants, and narcotics; if taken in excessive doses, it occasions anxiety, vomiting, syncope, and delirium, for all which effects opium is the best counteracting remedy. It is given in doses of from five to twenty grains, in pills, powder, and emulsions; its chief officinal preparations are: camphor mixture—dose, from one to two ounces, made by simply putting a lump of the gum in cold water, and letting it stand for a few hours; tincture of camphor—dose, thirty to sixty minims; compound ditto (Paregoric Elixir), one to three drachms; camphorated emulsion—dose, from half an ounce to two ounces; camphor liniments, simple and compound, soap liniments, and spirits of camphor, are used externally as stimulants and counter-irritants. Rubbed down with prepared chalk, in the proportion of one drachm to the ounce, it makes a good tooth-powder; sniffed up the nostrils, it relieves cold in the head; the vapors, inhaled by means of a tube, like a cigar, are useful in affections of the chest; a piece held in the mouth is thought to be a good protection against fevers and other infectious diseases; finally, its strong odor protects animal substances from the ravages of insects.

HYDROCYANIC ACID.

This is more commonly called prussic acid. It is a most powerful sedative poison, but, skilfully employed in small doses, it is sometimes very useful in pulmonary consumption, and spasmodic coughs of every description, particularly asthma, chronic cough, and whooping-cough. Linnæus informs us that it was frequently used in Holland in pulmonary consumption, and many eminent medical men have thought highly of it as a remedy in this complaint, and in spasmodic coughs. It would seem to be most beneficial in coughs originating in great irritation and disease in the windpipe. It is also useful in those instances of indigestion which are attended with pain and acidity of the stomach, and accompanied with heat and soreness of the tongue; but, upon the whole, it is much inferior to many other remedies for this disorder. The dose is from two to eight drops, which may be taken in distilled water, almond emulsion, or infusion of Peruvian bark, and repeated twice a day.

As a local application, it is very efficacious in allaying the itching and tingling which are so distressing in tetter and other cutaneous eruptions, which appear on the face, head, hands, etc.; and it not only allays the itching of these pustules, but will often be of much

service in promoting their cure. The lotion for external use is made by mixing a drachm of the hydrocyanic acid with an ounce and a half of rose-water, with which the part affected may be washed three times a day. It may be used advantageously in the following combination: two drachms of the prussic acid, sixteen grains of the acetate of lead, half an ounce of spirit of wine, and eight ounces of distilled water, which are to be mixed together for a lotion. This soothes the irritability of the diseased surface, and disposes the skin to renew its healthy action.

The cherry-laurel water acts in the same way as the medicinal prussic acid, but is less energetic. The dose is from six drops to half a drachm. It is much used in some countries. Only a diluted hydrocyanic acid is used in medicine. The pure acid is dangerous even to handle.

ACONITE (*Monk's-hood*).

This medicine consists of the root or leaves of *Aconitum napellus* in powder, extract, and tincture.

It depresses certain of the vital functions, such as respiration, the action of the heart, and the sensibility of the nerves, in a remarkable degree, and consequently is a valuable agent when the system is deranged through an exaggerated activity of those functions. It is principally useful in fever, in some inflammations, and in neuralgia. It is especially excellent in facial neuralgia, and in nervous headache. In neuralgia it may be given in doses of two or three drops of the tincture—or the tincture, or an ointment made from the powder, may be applied externally. It is of value in erysipelas, and has been reputed to be almost specific against acute articular rheumatism.

Tincture is the best form. Dose, two drops; never more than ten drops to be given in a day—a very small quantity will destroy life.

VERATRUM AND VERATRIA.

Veratria is the poisonous principle found in colchicum and other plants. It is a white, very acrid, inodorous substance, scarcely soluble in water, and not very soluble even in boiling water. It is quite soluble in alcohol, ether, and the vegetable acids. It is not a safe domestic remedy for internal use. It may be employed externally, and chiefly in the relief of rheumatic and other chronic pains, rubbed into the parts in the form of an ointment, being mixed with hog's-lard. From ten to twenty grains of veratria, mixed with an

ounce of hog's-lard, is the safe proportion—about the size of a large nutmeg being rubbed into the part night and morning. The proof of its taking effect is the sensation of sharp pricking which is usually felt on the part subject to its operation. After it has been used for three or four days, it will sometimes occasion sickness and vomiting.

Tincture of veratrum is made from the *veratrum viride*—a plant of which veratria is the active principle. It is a most powerful sedative. The dose is from two to four drops of Norwood's tincture. From its power over the action of the heart, it has great power in controlling the severe forms of inflammation.

CIMICIFUGA (*Black Snakeroot—Cohosh*).

This is a native plant, abundant in various parts of the country, the virtues of which are extracted by boiling water. It is used with great success by the country people, and by the doctors, as a remedy for acute rheumatism, and for the nervous diseases allied to rheumatism, as chorea. Of the saturated tincture, made with four ounces of the root to a pint of alcohol, give in acute rheumatism twenty to forty drops every two hours. Boil an ounce of the root in a pint of water and give a wineglassful three times a day in chorea.

COLCHICUM.

This is the meadow-saffron, and is a perennial plant, generally found growing in moist, rich meadow-grounds, and flowering in September.

Its action is that of a purgative, diuretic, and sedative, or narcotic. Hence it stimulates the excretory ducts of the liver and pancreas, and the mucous membrane of the intestines, producing copious bilious stools, and diminishing febrile action; but it is a violent medicine, often dreadfully depressing, and therefore unfit for domestic use. It has been chiefly used in gout and rheumatism; but, in order to its being of much permanent benefit in these maladies, it requires to be administered with caution and judgment, or otherwise it will prove detrimental instead of being useful. In gout and rheumatism, its powers, when directed and regulated by a judicious mind, are often valuable as an anodyne, since it allays the tormenting pain of those cruel disorders more speedily and effectually than any other remedy, and, in combination with other suitable medicines, may shorten the period of the disease. Given persistently in attacks of gout, it at first controls and subdues all the

symptoms, but soon loses all power and has no effect on the disease, while the intervals between paroxysms become shorter during its employment. It operates on the bowels chiefly, and the nerves; and, when taken in excess, it enervates the digestive organs, and has a terrible effect of a depressing nature on the whole nervous system, which is apt to remain for some time.

The dose of the extract is from half a grain to one grain. The vinegar (*acetum colchici*) is the best mode of administering it; but the tincture may also be given in the dose of fifteen drops, combined with a little magnesia and water.

VALERIAN

Valerian is antispasmodic and tonic; and is sometimes highly beneficial in those diseases which appear to be connected with a morbid susceptibility of the nervous system, as in hysterics, pain of one side of the head, and in some species of epilepsy. It is of service in some instances of hypochondriasis, or low spirits, but its very nauseous taste is a great obstacle to its frequent employment. It is best given in substance, united with a small portion of mace or cinnamon, which in some degree disguises the flavor. The dose is from a scruple to a drachm, given three or four times a day.

The ammoniated tincture of valerian is an efficacious cordial and antispasmodic, of great benefit to the nervous and low-spirited. The dose is from one to two or three teaspoonfuls, with a teaspoonful of tincture of cinnamon, thrice a day, in water; but it should not be given in any bitter infusion.

MUSK.

This article is stimulant, and antispasmodic, possessing much power in resolving spasm, and increasing the energy of the brain and nerves. Hence it is sometimes efficaciously given in typhus fever, when low delirium, twitching of the tendons, and hiccough, supervene. It has also been praised for its virtues in arresting the progress of gangrene, when combined with ammonia. It is sometimes advantageously exhibited in spasmodic diseases, especially in epilepsy, hysterics, and cholera morbus. In large doses it is of great service when gout suddenly leaves the extremities, and fixes on the stomach, or some other vital organ. It is a very high-priced article, and is with great difficulty obtained genuine.

It is given in substance, in the form of a bolus, of which the dose may be from eight grains to a drachm, repeated at intervals of three and six hours.

ASSAFŒTIDA.

This article is a gum resin, obtained from the roots of a tree which is a native of the south of Persia. It is brought into this country packed in cases, mats, and casks. The best is clear, and of a pale-reddish color, contains many of the white tears, and has the odor very strong.

It is powerfully antispasmodic, and expectorant, and is given with advantage in hysterics, low spirits, flatulent colic, and in the coughs of the aged and the nervous. The dose is from five grains to a scruple; it is best taken in the form of pills, on account of its nauseous taste. In hysterics a drachm of assafœtida may be mixed with an ounce and a half of peppermint-water, two drachms of ammoniated tincture of valerian, and two drachms of sulphuric ether, of which mixture the dose is a tablespoonful every second hour. When given in a clyster for the cure of flatulent colic, it often operates like a charm.

CASTOR.

This is an oily substance secreted by the beaver in a bag near the rectum; it is a nervous stimulant, antispasmodic and emmenagogue, and is useful in several nervous affections, especially when connected with uterine irregularity; that from Russia is much the best. Dose of the powder, from ten to twenty grains; of the tincture, from one to two drachms. Chemists have extracted its active principle, which they have called castorine, but it has not come much into use.

ALUM.

This is a triple salt, the sulphate of alumina and potassa. It is one of the most powerful astringents. Taken inwardly it causes some uneasiness to the stomach. It constipates the bowels, unless large doses are given, when it purges. It is in a certain degree stimulant also. It is mildly caustic, and is the best application to exuberant granulation on sores. It is a useful application in uterine or other hæmorrhages, and makes an efficient gargle for relaxed states of the throat.

NUTGALLS.

Nutgalls are a very powerful astringent; and the infusion, prepared by pouring six ounces of water upon four drachms of nutgalls, is a very useful injection in whites and gleet. It forms also an

excellent astringent gargle in relaxation of the uvula, and is undoubtedly of great service as an astringent in prolapsus of the anus and womb. Gallic acid is one of the most efficacious remedies in bleeding from the bladder, and other parts, in doses of five grains in mucilage of gum-arabic, repeated as occasion may require.

CATECHU

Has tonic and astringent properties, which render it valuable in diarrhœa, chronic dysentery, and passive hæmorrhages, especially those of the bowels or uterus; also in leucorrhœa, gleet, chronic catarrh, and all cases of increased mucous discharge without inflammation. In the composition of astringent gargles and lotions for ulcered sore throat, ulceration of the mouth, chapped nipples, etc., it is employed with advantage: for the last-named purpose the tincture is generally used; of this, the dose is from half a drachm to two drachms; of the infusion, from one to two ounces; of the powder from ten to thirty grains; of the electuary, from one to six scruples. There is also a catechu-lozenge, of which one may be taken several times a day for hoarseness; and a compound powder, the dose of which is from one half to one and one half drachm: mixed with bark and myrrh, it makes a good dentifrice. Catechu was formerly called *terra japonica*, or Japan earth; it was then supposed to be a mineral instead of a vegetable production; the best kind is of a pale chocolate color; it should be free from sticks and other impurities.

MATICO.

This is used in chronic dysentery and diarrhœa, in the form of infusion of the leaves, the under side of which, or the powder, applied to obstinate leech-bites, cuts, or bleeding surfaces, will, it is said, arrest the flow of blood. The tincture, mixed with water, forms a good astringent lotion for the mouth. The dose of the powder is from ten to thirty grains; of the infusion, prepared by pouring a pint of boiling water on one ounce of bruised leaves, one ounce; it may be taken three or four times a day. The tincture is made with two ounces of bruised leaves to a pint of proof spirit; the dose of this is from one to two drachms.

TANNIN.

A principle obtained from oak-bark, and other astringent vegetables, and so called from its forming the principal agent in the process of tanning. Tannic acid is prepared from galls treated with

sulphuric ether; it makes a good astringent gargle or injection in the proportion of from five to eight grains to one ounce of distilled water; it is sometimes given in internal hæmorrhage, and also in diarrhœa; dose, from one to two grains, dissolved in water or in a pill; it is precisely similar in its action to gallic acid.

KINO.

This is, perhaps, the most powerful of all the vegetable astringents, containing about seventy per cent. of tannic acid; hence its use in diarrhœa, dysentery, gonorrhœa, leucorrhœa, and internal bleedings and discharges generally. It is also employed as an external application to foul ulcers, as a gargle to constringe relaxed uvulæ, and as a styptic. The dose of the powder is from one to two drachms; of the compound powder (which contains one grain of opium to twenty grains of kino), from ten to twenty grains; of the tincture, from one to two drachms.

CREOSOTE.

In its pure state it is a colorless, transparent, oily liquid, having the fluidity of thin almond-oil. One of its most remarkable properties is the decisive power with which it is endowed of effecting the rapid coagulation of all the albuminous and serous fluids existing in the living as well as the dead animal tissues. When brought in contact with white of egg, coagulation instantly ensues. Creosote, in its concentrated state, and in consequence probably of its coagulating power, exerts all the decisive and rapid effects of a strong poison on man and animals; small animals, as wasps, beetles, etc., when moistened with it, dying under long and violent convulsions, and fish ceasing to exist in water impregnated with one-hundredth part of it.

Where two or three drops of very dilute creosote are taken into the stomach, a sensation of warmth is experienced. The greatest circumspection is required in the administration of this medicine. Internally administered, it is chiefly useful in a few peculiar cases of indigestion, where a good deal of torpor exists; externally it is used with uncommon advantage in ringworm of the scalp, in itch, and in toothache. In toothache from decayed teeth, it is only necessary to moisten the point of a wooden spill with the creosote, and introduce it into the hollow of the tooth.

The creosote mixture, in which the taste is concealed by oil of juniper, is the best form of administration; the dose is from one to two ounces. We give the form: creosote and acetic acid, of each,

sixteen minims ; compound spirit of juniper and syrup, of each, one ounce ; water, fourteen ounces ; mix the creosote with the acid, then add the water gradually, and lastly the syrup and spirit. As a lotion for inflamed eyelids, and mercurial salivation, a preventive of bed-sores, and a variety of other purposes, this substance has been applied successfully.

KRAMERIA (*Rhatany*).

This is a powerful astringent and tonic, and may be used as such in most diseases of debility and relaxation. It has been long known to the manufacturers of port-wine, who use it to impart the astringency which that wine always contains. It is particularly useful in some cases of chronic diarrhœa and dysentery. It is most frequently administered in infusion, decoction, or extract. The infusion is made with half an ounce of the bruised root to six ounces of boiling water, poured on it ; of which the dose is from one to two ounces. The decoction is made by boiling two ounces of the bruised root in a pint of distilled water ; the dose is the same as of the infusion. A teaspoonful or two of the tincture in water, two or three times a day, is a convenient mode of taking it, and also an efficacious one. This medicine is given in Bright's disease, and reduces the quantity of albumen lost in the urine. It also remedies that condition of the intestine which leads to fistulæ.

LEAD.

Preparations of lead are used medicinally as astringents, both externally and internally, and are also given as antispasmodics and sedatives ; to check hæmatopsies and other forms of bleeding they are administered, as well as in fluxes of the bowels and urino-genital organs ; and their application in the form of lotions, ointments, and plasters, to inflamed surfaces, is commonly of great service. It should be borne in mind that these preparations are very poisonous, and therefore unfit for internal use, except under medical advice.

Acetate of lead (*Plumbi acetas*) is the form generally adopted for internal use ; it is given in hæmatemesis, diarrhœa, and dysentery, in doses of from three to five grains ; it also forms astringent lotions, injections, and ointments.

Diacetate of lead (*P. diacetas*) is the sugar of lead ; in strong solution it constitutes Goulard's extract ; in weaker, Goulard water ; cooling and astringent lotions for inflamed parts, collyria for various ophthalmic affections, and injections for gonorrhœa and leucorrhœa are made from these.

Carbonate of lead (*P. carbonas*), generally known as white lead. The powder is mixed with lard, to form a cooling ointment, and is used dry as an absorbent and astringent.

MALE FERN.

A common plant, chiefly used as a remedy against tape-worm. Oil of male fern is the most satisfactory preparation, but powder of the root is also used.

The dose of this powder is from one to three drachms; it should be given on an empty stomach, and followed, in the course of two or three hours, by an aperient; castor-oil is the best. The oil of male fern is obtained by evaporating an ethereal tincture of the buds or roots, and this is the pleasantest and most convenient form of administration. It may be taken thus: one-half a drachm mixed with two ounces of mucilage, half at bedtime, the rest in the morning, with an ounce of castor-oil three or four hours after the second dose. A decoction of the fresh root or buds is also effectual: dose about four ounces; of the ethereal tincture, from one to two drachms may be given; and of the extract from ten to thirty grains.

PINK-ROOT (*Spigelia marilandica*).

This is one of the most powerful anthelmintics known; it belongs to the natural order *Spigeliaceæ*, so called from Adrian Spigelius, of Padua, who first discovered the properties of the plants composing this order. This plant is also a purgative, and to some extent a narcotic; the root, which is the part used, has a faint odor, and a peculiar and unpleasant taste. When given for worms it should be followed by a brisk cathartic; the dose is from ten to twenty grains for a child; from one to two drachms for an adult, repeated morning and evening for some days.

SALT.

This term is applicable to saline matter generally; but in its common application we understand it to mean the chloride of sodium, or common table-salt, which, as a condiment, and used in moderation, is beneficial to man, who, in common with the lower animals, appears to have an instinctive desire for it. There can be no doubt that salt greatly assists the process of digestion; it is one of the constituents of the blood, and of the body generally, and we find that, where it is denied, the digestive powers are weakened,

and the general tone of the system is impaired. It has also been observed that those who do not take salt are especially liable to worms in the intestines. Hence the desirability, if not the necessity, of insisting that children should eat a certain proportion with their food. On the other hand, if taken in excess, it is productive of mischievous results as a cause of scurvy. As a medicinal agent, salt occupies an important place; in some cases of convalescence we find an intense craving for it; and this should be indulged, but not to an immoderate extent, as it appears to have a tonic effect. It is sometimes administered as a domestic emetic in solution—two ounces being dissolved in half a pint of warm water; occasionally, however, when so administered, it acts as a powerful purgative. Such a solution, thrown up as a clyster, destroys and brings away worms from the large bowels. Some advocate the use of salt in the treatment of typhus fever and cholera, and some have even held it up as a panacea, or universal remedy; while there are not wanting those who attribute to its use nearly all the ailments to which man is liable.

As an external application it exerts a tonic influence, and is highly beneficial in cases of debility, whether local or general. The salt-water bath braces and stimulates the system, and warm saline bathing and rubbing are good for rheumatic affections, sprains, etc.; if prepared artificially, about a pound of salt to three gallons of water is a proper average strength. "Brandy and salt" is an excellent stimulant application.

With regard to the preservative properties of salt on animal substances, we may observe that the chemical change which it effects in the juices of the meat, to which it is applied, considerably modifies the nutritive properties, and renders it less fit to nourish and sustain life; hence fresh meat is better than that which is preserved by salting, which should never be taken as a staple article of diet, if it can be avoided.

KOUSSO.

This medicine consists of the flowers and unripe seeds of the *Brayera anthelmintica*, an Abyssinian plant. It is especially lauded as a remedy against the tape-worm.

The dose of koussou for an adult is half an ounce, reduced to a fine powder, and infused for a quarter of an hour in a pint of boiling water; the whole to be well stirred together and drank early in the morning on an empty stomach. The mixture is almost tasteless, and consequently does not require any addition for the purpose of making it palatable; but the Abyssinian method of mixing honey

with it is a good practice. The French physicians give a dose of castor-oil twenty-four hours before exhibiting the kouso, but this is not necessary. It is advisable that the bowels should be in an empty state when it is taken, but not relaxed; therefore a small quantity only of simple food should be taken, both before and after the dose, for twenty-four hours.

The immediate result of the medicine is generally two or more evacuations of the bowels during the day; these should be carefully examined, to ascertain if the whole of the worm is expelled, and the head of the animal should be particularly sought for, if possible, by the aid of a microscope. Should it not be found, or should the bowels not act sufficiently within twenty-four hours, a dose of castor-oil must be given, and the same attention directed to the evacuations. It is said to be very seldom that a second dose of the kouso is required, and some little time should be allowed for the action of the first dose, before it is resorted to; it may, when necessary, be repeated with perfect safety.

The effect of kouso upon the worm appears to be very severe and distinctive. When discharged it is generally found completely saturated, as it were, with the powdered kouso; its joints are filled with it, its various mouths choked up by it; and it is even found to have penetrated the alimentary canal.

TURPENTINE.

The oil of turpentine, as it is commonly called, is procured by distillation from the resinous exudations of many trees of the pine tribe, but especially from the *Pinus palustris*.

The action of turpentine on the system is anthelmintic, diaphoretic, diuretic, purgative, and stimulant; it is also given as an astringent: externally it acts as a rubefacient. As an anthelmintic it should be given in combination with castor-oil, lest, failing to purge, it should stimulate the urinary organs too much, and produce dysuria; as a diuretic, it is prescribed in dropsy and suppression of urine; as a purgative, it is useful in cases of tympanitic distention of the abdomen, and in acute stages of puerperal fever; as a stimulant to the nervous system, in neuralgia and epilepsy; as an astringent, in internal hæmorrhages, and to check the mucous discharge in gonorrhœa and leucorrhœa. Guthrie and others have prescribed it in inflammation of the eye. The ordinary dose, as a stimulant and diuretic, is from ten to thirty minims; as a cathartic or vermifuge, half an ounce to two ounces, with castor-oil: the best mode of administration is to suspend it in mucilage or yolk of egg.

Canada balsam, Chio or Cyprus turpentine, common or stone turpentine, Strasburg turpentine, and Venice turpentine, are all the products of different species of pines, which belong to the natural order *Coniferae*; they differ but little in their medical properties.

PUMPKIN-SEEDS.

The seeds of the common pumpkin are the most certain cure for tape-worm. Take an ounce of the seeds, macerate in hot water so as to get rid of the hard, cortical part, powder, and take in the same manner as directed for koussou.

SANTONIN.

This is the alkaline principle of the Jerusalem worm-seed, and is the most effective of all medicines against the round worm. It is tasteless, and requires but a small dose; hence it is the best medicine for children. Never give a child of two or three years more than a grain at a dose.

COLD.

The use of cold, in the treatment of disease, has long been known and highly valued. On the system generally it acts as a bracing tonic, strengthening and invigorating the frame. In certain forms of inflammatory disease, and where there is undue excitability of any organ, the application of cold is attended with the most beneficial effects. That of ice is generally applied, when the ice itself can be procured, but a very low temperature may be produced by various evaporating lotions made with spirits, etc., and other constituents: one of the most useful and easily procured is a compound of muriate of ammonia, commonly called sal-ammoniac, and nitrate of potash, or saltpetre, of each of these one-half an ounce added to a quart of water fresh from the spring or well, should the weather be warm. The best spirit to use is ether, next to that pure alcohol, but any strong spirit will produce the effect; moisten a piece of lint with it, and lay it over the part affected.

DALBY'S CARMINATIVE.

Dr. Paris gives, as a formula for the preparation of this celebrated quack medicine, the following:

Carbonate of magnesia,	2 scruples.
Oil of peppermint,	2 drops.
“ nutmeg	2 drops.
“ aniseed,	3 drops.
Tincture of castor,	30 drops.
“ assafœtida,	15 drops.
“ opium,	5 drops.
“ cardamoms (compound)	30 drops.
Spirit of pennyroyal,	15 drops.
Peppermint-water,	2 ounces.

The great objection to the use of this otherwise excellent carminative is the opium which it contains; for this is a drug which should never be given to the young, unless under medical sanction and supervision. The above formula contains, we see, five drops to two ounces; but every druggist makes his own “Dalby” according to his own particular form; and in many of the formulas there is no doubt a much larger proportion of the objectionable drug; indeed, the stronger he makes it in this respect the greater satisfaction will be given to his customers, whose object is to “still” their fretful infants. Leave out the laudanum, and no better carminative could be administered than the above; leave it in, and “Dalby’s” is a dangerous nostrum, whose frequent and habitual use, although it saves mothers present trouble, entails upon them future sorrow and anxiety, by making their children grow up puny and sickly, if it does not produce mental imbecility.

[The “Dalby of the Period” is called “Mrs. Winslow’s Soothing Syrup.”]

ARNICA.

Commonly called leopard’s-bane. Botanical name, *Arnica montana*; natural order, *Asteraceæ*. Many virtues have been ascribed to this plant—more, perhaps, than it really possesses; its principal appears to be that of a nervous stimulant. On the stomach and bowels it acts as an irritant; it is said also to be diuretic, diaphoretic, and emmenagogue. In Germany it is a popular remedy for the ill effects of severe falls, bruises, etc., on the nerves and brain; it is also given in amaurosis, paralysis, and other nervous affections; also hydrocephalus, and typhus fever, in the latter stages of which it has been recommended. It is used externally in lotions for bruises and affections of the brain. Dose of the powdered flowers, five to fifteen grains; powdered root, ten to thirty grains; infusion, half an ounce; extract, one to ten grains; tincture, thirty drops; essential oil, one to two drops.

POPPY.

The poppy-heads used for fomentations are mostly of home growth; their anodyne properties render them valuable for soothing fomentations, for which purpose they should be broken up and boiled, the liquor only being used; into this, when quite hot, a flannel should be dipped and wrung out, and then laid on the part affected, dipping it afresh as soon as it begins to cool: for this purpose the seeds need not be used, as they possess no medical virtues; they contain an oil useful in the arts, which is obtained by expression.

Extract of poppies is made by boiling down fifteen ounces of bruised poppy-heads in one gallon of water, until it is reduced to four pints; strain the liquor, and evaporate to a proper consistence; it is not so strong as opium, and may be given in doses of from two to ten grains, as an anodyne.

Syrup of poppies is thus prepared: poppy-heads, bruised, three pounds, put into five gallons of water, boil down to two gallons; strain, and again boil to four pints; strain, and set aside to cool, and allow the dregs to subside: again boil to two pints; and in this dissolve five pounds of lump sugar, pour into a vessel to cool, and add spirits of wine five fluidounces; this forms an ingredient in many cough mixtures, and is often given to children to soothe them when fretful, a most reprehensible practice; the dose for an adult is from two to four drops.

Syrup of red poppies (*Syrupus rhœados*) is made by pouring on a pound of poppy-leaves one pint of boiling water; let it macerate for twelve hours, then strain, and add three pounds of sugar; boil until well dissolved, then add spirits of wine two and one-half fluidounces; it is questionable whether there is much medical virtue in this; it is chiefly used as a coloring material.

GODFREY'S CORDIAL.

This is the common "sleeping-stuff" which the poorer classes give to their children to keep them quiet, while the parents are out working or taking their pleasure: its extensive and indiscriminate use is the cause of much mischief; the objections which we have urged against Dalby's carminative apply with much greater force to this compound. "Godfrey's" is prepared in various ways, but the following formula will pretty fairly represent what are its general constituent principles: boil in eight gallons of water one pound each of caraway, coriander, and anise seed, with two ounces of

ginger; while hot, mix fourteen pounds of treacle; and, when a little cool, two pints of laudanum, in which two ounces of oil of sassafras have been previously put. Let the whole stand, frequently shaking, for two or three weeks, then strain and make up to eight gallons with water. Were it not for the quantity of opium which it contains, this would be a very good carminative; and, as it is, may be a serviceable medicine, properly and discreetly used.

OX-GALL.

Some years ago the gall or bile of the ox was quite a fashionable remedy for habitual constipation; in many cases it was undoubtedly found serviceable, but not perhaps in the majority, and it therefore fell very much into disuse. Where there is a want of tone in the stomach, and especially with pregnant women, it often acts extremely well; it may be prepared for medicinal purposes in the following manner: buy a gall-bladder and turn out the contents in a shallow vessel, of metal is best; put it in an oven and let it evaporate until it becomes sufficiently firm to make into pills, of which one or two, of five grains each, may be taken twice a day.

GREGORY'S POWDER,

So called from Dr. Gregory, who first used it, consists of rhubarb, calcined magnesia, and ginger, in the proportion of two parts of the first, four of the second, and one of the third. It is an excellent stomachic and mild aperient, and may be taken occasionally by both adults and children with great advantage; but it should not be taken often and regularly, as the quantity of magnesia will be likely to irritate the coats of the stomach, and bring on diarrhœa and dysentery. Gregory's powder may be taken either in simple water, or with a few drops of sal-volatile, which will increase its stimulant and tonic properties.

GLYCERINE

Is the sweet principle of oils produced during the making of soaps. It has been recommended internally in consumption. It is usefully employed as an external application in scaly diseases of the skin, and to ulcers, and it has been recommended in deafness.

BORAX.

This is a bi-borate of soda. The natural salt is found chiefly in Persia and Thibet. The preparation commonly in use is the

honey of borax. This is a cooling, cleansing application to the tongue and fauces in thrush. Dissolved in water, in any agreeable proportion, it proves an excellent gargle in those affections.

BROMIDE OF POTASSIUM.

This is a very powerful sedative, that directly controls morbid irritability of the brain and nervous system. It may be given to procure sleep, to lessen cerebral excitement, and to control spasm and convulsions. Give ten, twenty, or thirty grains in water at a dose, and repeat every hour or every second hour.

PAREGORIC ELIXIR.

This is made by mixing together two scruples of camphor, one drachm of hard opium in powder, one drachm of acid of benzoin, and two pints of proof spirit; which are allowed to digest for fourteen days, and afterward filtered.

It is advantageously employed to allay irritation and procure rest in habitual cough, chronic asthma, and the latter periods of hooping-cough. It is most appropriate in dry coughs. It may also be employed with effect, for the same purposes, in recent cold and cough, after the inflammatory symptoms have abated; but it is highly improper in all cases of cough attended with much fever, pain in the chest, and full, quick pulse. Half a fluidounce of this elixir contains nearly a grain of opium. The dose to procure ease in cough is from one to two teaspoonfuls occasionally; and three teaspoonfuls where quiet, rather than sleep, is required.

ICELAND-MOSS.

Iceland-moss, called also Iceland-liverwort, is tonic and demulcent. It unites a strong bitter principle with demulcent properties, on which its medicinal effects are supposed to depend. It is generally given in the form of decoction, which is prepared by boiling one ounce of the picked moss in a quart of water down to a pint, and then straining it while hot. The dose is from half an ounce to two ounces, three times a day, either alone or mixed with milk. In this state the decoction is very bitter, but, although not the most pleasant, it is probably the most efficacious way in which it can be taken. If, however, the patient will not take it in this way, it may be freed from a considerable portion of its bitterness by being steeped in hot water for two or three hours, previous to its being

used to make the decoction. This water, is of course, thrown away, and then the ounce of moss is boiled in two pints of water, as above directed.

GUM-ARABIC.

The tree which yields this article is found in almost every part of Africa. This gum is a simple demulcent, serving to lubricate abraded surfaces, and involve acrid matters in the stomach and bowels. It is chiefly used in the state of mucilage, but is sometimes taken in the solid form, to sheath the fauces, and allay the tickling irritation which occasions the cough in catarrh and pulmonary consumption; in which cases, a piece of it is allowed to dissolve slowly in the mouth.

The mucilage of gum-arabic is made by dissolving four ounces of gum-arabic, in powder, in half a pint of boiling water. This, in the dose of half an ounce or an ounce, is a useful demulcent in looseness, dysentery, gravel, and scalding of urine, or as a vehicle for opium, and other medicines, in these complaints.

Gum-water, made by pouring a pint of boiling water on two or three ounces of gum-arabic, is a very useful and agreeable diluent in many disorders, both acute and chronic. Thus in fever, in cough, consumption, stomach, and other chronic complaints, it cools the mouth, and sheaths the throat and alimentary canal, and likewise affords some support.

LIQUORICE.

This is an inspissated vegetable juice, whose demulcent properties render it very useful in coughs and bronchial irritations; it may be taken in considerable quantities without disordering the stomach, or causing thirst. This extract is often used to cover the taste of more nauseous medicines. Good Spanish juice is hard and brittle, breaking short off when struck; it enters into the composition of many kinds of lozenges. A soft extract of liquorice is used by druggists in the composition of pills, and the powdered root is also much employed.

FLAXSEED.

The "tea" so-called, which is a decoction of the seeds, is a very excellent demulcent for use in colds, and all the occasions where such an article is necessary. The poultice made of flaxseed meal is exceedingly soothing, by reason of its soft, emollient quality.

HYDROCHLORIC ACID.

This acid is tonic and antiseptic, and is efficaciously used in typhus and typhoid fevers, malignant sore throat, and cutaneous eruptions. The good effects of this acid in malignant typhus fever are sometimes remarkable.

The dose is from ten to twenty drops, in a teacupful of barley-water, or infusion of bark. In desperate cases of typhus, half a drachm may be given at a dose, every four hours, properly diluted.

It is likewise useful in some cases of indigestion accompanied with general debility, in the secondary symptoms of syphilis, and in white gravel. It is a powerful escharotic, and is used to cauterize the pharynx in diphtheria or other throat-diseases.

In the proportion of a drachm or two, in six or eight ounces of infusion of roses or decoction of bark, it forms a very useful gargle in ulcerated sore-throat.

By pouring a little sulphuric acid on common salt, muriatic acid gas is disengaged, which has the important property of destroying the infection in sick-rooms and hospitals, where putrid fever exists.

When this acid is taken as a poison, the best antidotes are soap and calcined magnesia, suspended in water, the patient taking care to drink copiously of warm water, milk, or broth.

NITRIC ACID.

This is prepared from the nitrate of potash, or saltpetre and sulphuric acid. A heavy, colorless fluid; has tonic, antiseptic, and antisyphilitic properties; it is given in chronic disease of the liver and indigestion, especially when connected with urinary deposit of uric acid, and the phosphates. On scrofulous habits, and constitutions worn out by indulgence in excesses, it sometimes has a good effect; it has also been found useful in whooping-cough and asthma. It is usually prescribed in the diluted form of one part to nine parts of water, the dose of which is from ten to twenty drops. Largely diluted, it is given as a drink in fevers of the typhoid kind, in dyspepsia, and cases where there is a redundancy of bile.

SULPHURIC ACID, OR OIL OF VITRIOL.

Prepared from sulphur. This is the most ponderous of all the fluids, except quicksilver, being more than double the weight of water; when pure it is perfectly clear and white, but so great is its dissolving power that the slightest portion of vegetable or animal

matter which it may take up speedily deepens the color, and eventually turns it nearly black. This is the strongest and most corrosive of acids, and one of the most powerful of mineral poisons; and yet, largely diluted, it is very commonly administered as an antiseptic and refrigerant in typhoid fevers, as a tonic in general debility, and as an astringent in hæmorrhages and excessive perspiration. In chronic cutaneous affections, where there is troublesome itching, it is also given with good effect; and latterly it has been much used, and with remarkable success, in the epidemic diarrhœa, often premonitory of cholera, which has, from time to time, prevailed in this and other countries. The diluted sulphuric acid of the pharmacopœia, which is usually prescribed, contains one and one half in twenty parts, and the dose of this is from ten to thirty minims largely diluted. For a gargle to check salivation, one to three drachms may be put into half a pint of any convenient fluid; this may be used in all cases where an astringent application is required.

CITRIC ACID.

This is prepared from lemon-juice. It is in white, semi-transparent crystals of a rhomboidal shape, soluble in twice their weight of cold, and half their weight of boiling water. This acid is refrigerant, antiphlogistic, and antiseptic in its effects. It is useful in fevers and inflammatory complaints; combined with carbonate of soda, it forms a good effervescing draught; dissolved in water, in the proportion of one drachm to a quart, may be employed as a substitute for lemon juice. The usual dose is from ten grains to a scruple; fifteen grains of it neutralizes twenty grains of bicarbonate of soda.

GALLIC ACID

Is obtained from galls, and, like them, is powerfully astringent; given to stop inward bleedings and other discharges, and used in gargles, lotions, and injections. Dose—from two to ten grains, as a general tonic and peptic. In chylous urine, it has been given in twenty-grain doses three times a-day. It is in brownish-white crystals, semi-transparent, weighs light, and dissolves in spirit of wine or hot water.

OXALIC ACID.

This acid is found in the state of oxalate of lime, in the roots of several plants; and in the state of binoxalate of potash, in the leaves of the *Oxalis acetosella* and some species of rumex. Its salts are called oxalates. The essential salts of lemons, or salt of sorrel,

is the binoxalate of potash, and the oxalate of lime is the basis of the mulberry calculus. As poisoning by oxalic acid is not of unfrequent occurrence, in consequence of its close resemblance to Ep-som salts, a few simple directions for such an emergency had better be given here. When a large dose of the poison has been swallowed, the first and almost immediate effect is complete prostration of strength; the patient sinks at once into a state of collapse, and dies within half an hour after taking the poison; severe pain at the stomach and vomiting sometimes precede this state of stupor, but not always. When there is vomiting, the expelled matter is very acid and dark in color. In such a case, only the most prompt measures can be of any service; the knowledge that oxalic acid (in itself readily soluble) forms, in combination with lime and magnesia, insoluble and comparatively inert compounds, teaches us that chalk or whitening is the best remedy; and, happily, one or other of these substances is generally at hand; if not, some old mortar scraped from the crevices of a wall may be mixed up with water and swallowed. Vomiting should be by all means excited, and plenty of water given to dilute the poison, and favor its rejection from the stomach. In the collapsed stage, stimulants will be required—brandy is the best; should the patient survive, there is likely to be great irritability of the stomach for some time; for this, soothing demulcent drinks and a milk diet should be given, and a few leeches may be applied to the pit of the stomach.

CARBONIC ACID.

This is the gas which, when introduced into the stomach in effervescing draughts, is so invigorating and refreshing, and which, when inhaled in large quantities, as in the case of wells and other confined places, is so prejudicial to life. In the former case, it is refrigerant and antiseptic, checking vomiting, and allaying thirst and gastric irritations. Applied to the skin, it acts as a stimulant, and it is useful to promote suppuration in ulcers, and remove the unpleasant fetor which attends a purulent discharge. It has been used as an injection into the rectum for cancerous ulcers and dysentery, and also into the uterus for a diseased condition of that organ. Carbonic acid is an active ingredient in several official compounds.

VINEGAR.

Vinegar is a weak vegetable acid, produced by exciting the acetous fermentation in substances which have undergone, or are

susceptible of, the vinous fermentation. Sugar and water, the saccharine vegetable juices, infusions of malt, malt liquors, cider, and wine, may be converted into vinegar, by adding to them yeast, or any other ferment, and exposing them in vessels to which the air has access, in a temperature between seventy-five and ninety degrees.

Distilled vinegar is sometimes employed as a cooling medicine in fevers, being added to any common diluting drink. When taken into the stomach it is cooling, promotes a gentle breathing perspiration, and the discharge of the urine. It allays thirst and diminishes excessive heat. In inflammatory fevers, it may be used to acidulate barley-water, or any other ordinary beverage of the patient. It is also an efficacious remedy for the scurvy, and one of the best means of counteracting the fatal effects of overdoses of opium, hemlock, and other narcotic poisons. For this last purpose, it should be administered in doses of a tablespoonful, frequently repeated, after the stomach has been freely emptied by a proper emetic.

Diluted with water, and applied externally as a lotion, it is sometimes of much service in burns, bruises, sprains, and chronic inflammation of the eye, and for clearing the eye of small particles of lime, when they adhere to any part of the ball, or the lids. Its odor is grateful when it is sprinkled on the floor of the chamber of the sick in malignant fevers, though it has little efficacy as a fumigation.

OTHER CURATIVE AGENCIES.

ELECTRICITY.

(Greek, *elektron*, amber.) So called because, by rubbing this substance, the existence was first discovered of that subtle fluid which appears to be diffused throughout all nature, either in a latent or active state, according to circumstances; we have here only to speak of it as an agent in the treatment of disease, in which of late years electric, galvanic, or magnetic action has been much employed.

The effect produced upon the system by electricity is that of a nervous excitant and stimulant; it promotes a freer circulation of the fluids, particularly of the blood, increases animal heat, and all the secretions and excretions of the body. It has been found chiefly useful in deafness, paralysis, head and tooth ache, indeed all neuralgic pains; to parts affected with cramp, gout, and rheumatism, it has often been applied with success, and also to foul and indolent ulcers. In asphyxia from drowning it should always be employed, if the means to obtain the necessary apparatus can be had, although only as an adjunct to other efforts. Electricity should *not* be applied when there is active inflammatory disease; nor when there is a high degree of excitement in the organs of sense, and in those of voluntary motion, nor when there are great relaxation and debility in those organs; nor when there is any prevailing local irritation, such as inflammatory tumors, skin eruptions, etc. The electric stimulus in such cases is likely to produce congestion, or a local accumulation of humors; the shocks given may be continuous, or a succession of smaller shocks, but they should always be regulated by the strength of the patient, and never be very violent, or they may cause serious mischief. An electric shock can be as well adminis-

tered to twenty persons as one; they have only to join hands with him in contact with the conductor, and the fluid will pass through them all.

GALVANISM.

A form of electricity, so named from its discoverer, Galvani; it is usually elicited by the mutual action of various metals and chemical agents upon each other, copper and zinc and sulphuric acid being those most commonly employed. It is sometimes called *Voltaism*, on account of the additional discoveries made by Volta, and sometimes *Animal Magnetism*, from its effects on the muscles of animals newly killed. The most simple galvanic battery that can be used is a set of tumblers, any even number will do, according to the strength required; about half fill them with water slightly acidulated with sulphuric or nitric acid, and place them close together in a row; put into the tumbler at one end a broadish strip of zinc, and into that at the other a similar strip of copper, and in each of the intermediate ones a strip of both metals with their flat sides together. Connect the whole by means of a bent wire passing along the top; through this the galvanic current will pass, and also through the body of any person who places one hand on the outer zinc and the other on the outer copper strip, these being the positive and negative poles of the battery.

The Galvanic Pile may be made in this way: Take twenty or thirty pieces of zinc, each as large as a penny, as many pieces of copper of the same size, and as many of cloth or paper, which last are to be dipped in a solution of salt and water; then build the pile by placing the pieces in this order—zinc, paper, copper; let it stand on a piece of board, and be kept in its position by rods of glass or varnished wood. Then, if the hands are wet, and one placed at the bottom of the pile, and the other at the top, a slight shock will be felt; and this will be the case every time one hand is withdrawn from the pile, or placed on it—thus breaking or establishing the electric current passing through the system.

The Galvanic Trough, a very powerful apparatus, is composed of zinc and copper plates placed in pairs, so that the zinc is always presented toward one end, and the copper toward the other. When the trough is nearly filled with water impregnated with nitric or muriatic acid, and the points of the wires which connect the two end plates are brought together, the action is very powerful—sufficiently so, when the plates are large and numerous, to decompose water, fuse metal, and work other chemical changes which can only be effected by intense heat.

Galvanic action is now applied to a great variety of useful purposes connected with art and science; it differs from that of electricity, as formerly applied, in being continuous, the fluid being renewed as fast as it is used; and therefore it never exhausts itself while the materials remain which produce it. The patient to whom it is applied is only sensible of its application at the commencement and finish thereof, and not then unless the current is very strong.

Medical Galvanism has of late come much into use; the theory of its application is, that there are some diseases in which the existing electricity in the body should be *increased*, to bring about a cure; and, on the other hand, others which require it to be *decreased*. It is, therefore, requisite for the medical galvanist to ascertain, by the nature of his patient's complaint, whether the electric fluid already circulating in the nerves is too plentiful or insufficient; if the former, he must decrease it; but, if the latter, increase it. Now, to increase the electric fluid in the system, we must apply the positive pole, or electrode, as it is sometimes called, to the hands, feet, or part affected, and the negative to the spine, or back of the neck. To decrease it, we must reverse this arrangement, and place the positive pole on the back, and the negative on the hands, feet, or part affected. We now give a list of those diseases requiring to be increased, and those for decrease of electricity:

<i>Increase.</i>	<i>Decrease.</i>
Amenorrhœa.	Cramp.
Asphyxia.	Epilepsy.
Deafness.	Headache.
General Debility.	Neuralgia.
Hysteria.	Profuse and Painful Menstruation.
Indigestion.	Rheumatism.
Paralysis.	Tic Douloureux."

The principal effect of *Electro-galvanism*, as it is sometimes termed, appears to be that of a powerful stimulant to the nervous and muscular systems; but, besides this action, it appears to have the power of allaying pain and irritability in the part to which it is applied; the reason of this is by no means apparent, and the use of the agent must therefore, for the present, be to a certain extent empirical.

MAGNETISM

Is that peculiar property of certain bodies, particularly iron and some of its compounds, by virtue of which they naturally attract or

repel one another according to determinate laws. This property was first observed in the native magnet, or loadstone, as above described.

In considering the nature of this property, we must divide the subject into two branches: 1. *Electro-magnetism*, which comprehends the phenomena resulting from the connection between electricity and magnetism; 2. *Animal magnetism*, which, on account of its real or supposed efficacy in the cure of diseases, is that branch of the subject with which we have here to do.

Anton Mesmer, a native of Mersburg, in Suabia, who studied at Vienna, and took his degree of doctor of medicine in the university of that city in 1776, was the discoverer of the supposed influence of magnetism in human diseases, and the name Mesmerism was applied to the theory which he propounded. Notwithstanding the extraordinary effects undoubtedly produced by this mysterious agent, animal magnetism has never taken very deep root in the public faith. At present we hear very little about it, although a few years ago it had its advocates and demonstrators everywhere. Scientific men generally, who have pursued those branches of study which would best enable them to understand the subject, believe that its influence is attributable to the effect of an excited imagination upon the nervous system of the patient; the uncertainty of its operation favors this impression, and renders it next to useless as a remedial agent. There are no known laws by which it can be regulated; no principle by which to guide its application. With some persons—very many—it is altogether ineffective; with others, it produces effects most strange and incomprehensible. That, by means of a few passes of the hands in certain directions over the face, a patient should be sent into a deep sleep, which goes the length of insensibility to pain—should be rendered generally or locally cataleptic, or be thrown into a state of somnambulism, with its accompanying conversational power—should be entirely, as it were, under the will of the operator, who has the power of removing the influence, and restoring the patient to feeling and consciousness—all this is so wonderful, and altogether out of the range of ordinary phenomena, that we scarcely wonder that, by some, it should be attributed to superhuman agency; the more especially when we step forward into the deeper mysteries of *Clairvoyance*, with its pretended insight into things past, present, and future; its intuitive knowledge of all hidden secrets; its ability to read a closed book, as well as an open one, and to understand the thoughts of the heart before they are expressed. All this, we are told, the *clairvoyant* is able to do, and yet we find that he cannot answer

some simple question propounded to him while in this peculiar Mesmeric state.

As a remedial agent, then, we cannot count on Mesmerism; it may be of service in some neuralgic cases, those in which, every remedy having failed, it may be desirable to give the patient another chance—a kind of peg to hang a hope on.

Among the theories which have been propounded to account for the effects produced by Mesmerism, two only merit notice. The first is that of Mesmer and his immediate followers, who attributed the phenomenon to the action of a subtile fluid in the bodies of animals, which enables them to exercise an influence on each other at a distance, just as a magnet affects iron; hence the name animal magnetism. This hypothesis, of a nervous fluid, susceptible of being influenced, and producing an influence more or less modified, was adopted by most writers on Mesmerism, until Mr. Braid, by a series of experiments, convinced himself and others that the Mesmeric state may be produced without any influence from a second person, but by simply directing the attention, by means of the eyesight, to some particular object, and keeping it there for a time. The state of trance, as it were, so produced, Mr. Braid called *hypnotism*, and he accounts for the phenomenon by supposing that “there is a derangement of the cerebro-spinal centres, and of the circulating respiratory and muscular systems, induced by a fixed state; absolute repose of body, fixed attention, and suppressed respiration, concomitant with that fixity of attention.” He further adds that he believes that in all cases “the whole depended on the physical condition of the patient, arising from the causes referred to, and not at all on the volition or passes of the operator throwing out a magnetic fluid, or exciting into activity some mystical universal fluid, or medium.” These are the two theories by which the phenomenon has been accounted for: neither of them is quite satisfactory. In simple electricity we have known laws to guide us; electro-magnetism and galvanism we can pretty well understand, although with respect to the exact nature of these there is yet much to be learned; but here we have only the glimmering light of hypothesis, like a will-o’-the-wisp, before us. Before animal magnetism can take its place as a true science, we must ascertain its nature, define its powers, and be able to calculate, with some degree of certainty, not only how it will act in certain cases, but why it does so act; until we can do this we cannot safely employ it in the treatment of diseases.

BATHING.

By bathing, we understand the whole or partial immersion of the body in any medium other than atmospheric air; it may be milk or oil, or medicated vapor, salt or fresh water, hot, tepid, or cold, as may be required; and we commonly understand water to be meant when no other medium is expressed. As regards the mode of application, it may be total immersion of the body by plunging or dipping, by shower, vapor, cold affusion, douche, sponge, or wet sheet.

The object of bathing, besides its great main object, bodily comfort and cleanliness, is to act upon the system through the skin, whose nervous irritability, sympathetic power, and extreme vascularity, and important functions as an excreting organ, admirably adapt it for absorbing and conveying through the whole system whatever may be brought into contact with it.

Bathing, as a means of promoting health and comfort, has in all ages been valued and practised in warm, and especially Eastern climes, as a source of voluptuous enjoyment, to a pernicious extent, on account of the enervating influence of the hot bath universally employed. In temperate climates cold bathing is more practised by those in health, and its effect is altogether beneficial, when due moderation is observed, and proper times and seasons. The temperature of the cold bath may range from 40° or 50° up to 80° or 85° Fahr.; its effect upon the system varies in accordance therewith, as well as with the nervous energy of the bather, with the length of time he is subjected to its influence, and with the muscular action he exerts during that time. As a rule, ten or twelve minutes is as long as a person should remain in the water at one time, and but one bath should be taken during the day. The best part of the day is the morning, before breakfast, especially for a strong, vigorous swimmer; but one of weak and nervous temperament will do best to go in about noontide; with such a bather a change of the hour will make all the difference between agreement and disagreement. If he comes out of the water with fingers and lips blue and countenance pale, and, instead of the pleasant glow which ought to follow a bath, feels cold, languid, and drowsy, and if a change of the hour does not mitigate or alter these symptoms of depression, he must give up the cold, and resort to the tepid bath, until the vigor of his constitution is in some degree restored. It is always dangerous to bathe after a full meal, or when exhausted by great bodily or mental exertion, and especially so when heated by running or other exercise; on the other hand, it is not well to immerse the body when

it is in a chilled state, in this case reaction is doubtful, and the consequences may be bad. Even in cold climates, a plunge into icy water may be taken with safety by those in full health and vigor; it will not have so depressing an effect upon the system as remaining long in a bath of a higher temperature, especially if friction with some coarse material be used directly after—this should always be done after a cold bath.

Sea-water is undoubtedly better for the bather than fresh, it exerts a more tonic influence, and its temperature is always more agreeable. The proper bathing season in this country is from the beginning of June to the end of September; the temperature of the water then ranges from 55° to 70° Fahr. When it is colder than this, should bathing be ordered for medicinal or other purposes, resort should be had to

The Tepid Bath, which should be of a temperature varying from 85° to 94°, about 88° or 90° being the most convenient and agreeable standard. This relaxes and purifies the skin, and promotes insensible perspiration, and is most generally applicable for purposes of cleanliness and comfort; it is very soothing and salutary in irritable states of the system, when the skin is dry or chafed, after a journey, or any other fatiguing exercises; but, like the cold bath, it should not be taken with a full stomach. As a remedial agent, it is good in ardent fever, where the temperature is a little above that of health; in diseases of the skin it often produces a salutary reaction; it is useful in chronic rheumatism, and gout, during the attack; also in headaches, colds, and inflammation about the head and throat. It has also been employed with good effect in obstructions of females.

The Warm or Hot Bath is understood to range from 93° to 100° Fahr., the standard temperature being about 96°. It ought to be employed as a remedial agent only, being too enervating for other purposes; to promote reaction in various stages of coma or collapse; to allay fever, whether spasmodic or inflammatory, soothe convulsive action, or to cause fainting when it is desirable to relax the tension of muscles and sinews for the reduction of dislocations, opening of constricted passages, or other purposes. The hot bath has a peculiar tendency to allay local or general irritation, and produce sleep; in complaints of the kidneys and loins, and in puffy swellings of the legs, it may be resorted to with advantage; it is applicable to weak and irritable constitutions which could not support the shock of cold immersions.

The Shower-Bath is a modern invention; its construction is very simple—a reservoir at the top, perforated with small holes, with a plate of metal beneath, which can be withdrawn by means

of a cord by the person inside, on whom the fluid falls through the perforations like a gentle shower. This receptacle is supported by three or four slight pillars or stems, which form the framework of the bath, and a support for the drapery falling down and enclosing all like the covering of a tent; within this, on a seat, with his feet in a pan or tub that receives the descending fluid, sits the patient.

This is a valuable agent in the treatment of various affections, and is available for many cases to which the general cold baths would not be applied. Its especial advantages are, first, that the contact of the water, instead of being sudden and momentary, may be gradual and prolonged at pleasure; second, the first shock of the water falls, as it always should do, on the head and breast, without exposing those parts to the danger and inconvenience of contact with hard substances, to which they are liable if the bather plunges so as to immerse them first.

The Vapor and Hot-Air Baths are useful for a variety of purposes; in paroxysms of gout, acute and chronic rheumatism, various skin-diseases, ulcers, lumbago, and sciatica, they are applied with advantage; they are great promoters of perspiration, and have a tendency to relax the system. They have been recommended for the cure of chilblains, cramps, leprosy, yaws, female obstructions, dropsy. The forms of application are various; a very simple one, as good as any, may be extemporized thus: Place on a fire, near which the patient can sit or lie, a small kettle of water, with a piece of metal tubing attached to the spout, the other end being conveyed beneath the blanket, or oil-cloth, in which the patient is enveloped; through this, when the water boils, the steam will pass and spread itself under the coverlet. Another method is to place a vessel of boiling water beneath the coverings of the patient, and keep up the supply of steam by putting into it hot stones, or pieces of metal. Those who can afford the expense, may obtain more complex and perfect apparatus of various kinds of the manufacturers.

Medicated Baths are those in which the water is impregnated with certain mineral, vegetable, and sometimes animal substances. Thus we have sulphur, chlorine, and iron baths, aromatic, and milk baths, which, if properly prepared and applied, may be productive of very beneficial effects.

The *Aromatic Vapor Bath* is prepared by passing the vapor of boiling water through aromatic plants, from which the active principles are thus carried off.

A good *Alkaline Bath* may be prepared thus: Subcarbonate of potash eight ounces; hot water about twenty gallons; employed as a revulsent in chilblains and sanguineous congestions.

For a *Sinapized Foot-bath*, add four ounces of flour of mustard to the above quantity of water, to determine the blood to the extremities, and thus relieve the head. This should not be used too hot.

The *Mercurial Bath*, employed in venereal affections, is formed of bichloride of mercury, from two drachms to an ounce to a gallon of water.

The *Hand Bath*, or *Manuluvium*, is prepared with mustard or carbonate of soda; sometimes, with hydrochloric acid. It is used in cases where there is a strong determination of blood to the chest, and mostly in French practice.

The *Antimonial Bath* is composed of tartrate of potash and antimony, of each from four to eight drachms and twenty gallons of water.

The *Aromatic Liquid Bath* is made by boiling a quantity of aromatic herbs, such as lavender, mint, pennyroyal, rosemary, in a quantity of water, and then adding the decoction to the water in which it is proposed to bathe.

The *Astringent Bath* is about half a pound of alum to twenty gallons of water.

The *Bran Bath*, good as an emollient in severe colds, may be made by pouring boiling water upon four pounds of bran, making up the quantity to twenty gallons; if for the feet, for which it is an excellent application, of course much less will do. The temperature should be about 90°.

The *Hemlock Bath*, useful in some skin-diseases, is made thus: two ounces of dried hemlock; boiling water, a gallon; let it stand for several hours, then strain, and bathe the part affected at a temperature of 90°.

The *Nitro-Muriatic Bath*, useful in liver complaints, and where there are gall-stones, is one pound of nitric acid and one pound and a half of hydrochloric acid, to forty gallons of water; immerse the patient for a quarter of an hour once a day; this may be continued for a fortnight or three weeks.

The *Sulphuretted Bath*, useful in cases of itch and other skin-diseases, is made by dissolving four ounces of sulphuret of potash in a pint of water, and adding this solution to the requisite quantity for immersing the whole person.

Where sea-water cannot be obtained, a composition for the *Sea-water Bath* may be made as follows: For each gallon of water add common salt three ounces and a half; sulphate of soda, commonly called Glauber's-salt, one ounce and a half; chloride of calcium, half an ounce; chloride of magnesia, one and a half ounce.

In bathing children, it should be borne in mind that the power of producing heat in warm-blooded animals is at its minimum at birth, and increases successively to adult age; hence, the water that feels but cool to the nurse's hand may be absolutely cold to an infant. Some persons are fond of what they call hardening their children, by plunging them into cold water in the winter; but this is a pernicious practice, and often produces disease.

That which is commonly called cold affusion, viz., the pouring of a stream of water on the head, when it is desirable to make a sudden and powerful impression upon the system, is resorted to in cases of poisoning by opium, and other narcotics, as well as by prussic acid, or the torpor arising from inhalation of the fumes of charcoal, and in hysteric epilepsy, lockjaw, etc.; also in inflammatory affections of the brain it is applied with benefit, even to children. The water should be poured on the head held sideways over a tub or pan, from a height of several feet; if the patient is in bed, the head can be projected from the side of it; a large sponge, filled with water, and squeezed from some height on the head, will be sufficient for children; from one to two minutes should be the period of the application.

The Wet-sheet Bath is formed by enveloping the patient in a sheet which has been dipped in cold or tepid water, and then wrung out; over this covering blankets are heaped, and a copious perspiration is the result. This, as well as the douche, enters largely into the treatment of patients at hydropathic establishments.

FRICTION.

As a substitute for exercise, friction may be strongly recommended; it should be applied often and vigorously. Not only does it stimulate the parts brought immediately under its influence, and cause a healthful glow of the skin, but it calls into action the various sets of muscles, and so is in itself a kind of exercise for the whole system; hence it is better for the bather—who should always have friction applied—to rub himself, and not be rubbed, especially in cold or temperate climates.

The value of friction, in a case of asphyxia, or suspended animation, from drowning, etc., is so well known that we need scarcely insist on it here; in all cases where there is coldness of the extremities from congestion, or impeded circulation, it should be applied with promptitude and vigor. Wonders are performed by this simple agent alone; but, for all that, we do not pin our faith to, nor believe altogether in, "the movement-cure." Good to a certain extent it

undoubtedly is, but, like all other remedial agencies, it should be used with discretion; those who claim for it a universal efficacy do but injure its real utility.

FUMIGATION.

This is a mode of diffusing vapors over a limited space, for the purpose of destroying or hiding disagreeable and unwholesome smells; or of applying them to a diseased part, such as the inside of the throat, which it would be difficult to reach in any other way. The most useful and important kind of fumigation consists in the employment of such gases or vapors, which do not merely cover unhealthy odors, by exciting others more powerful, but which actually destroy them, and by their chemical action prevent the decomposition of animal and vegetable substances; these we term *disinfectants*, and chlorine gas is, perhaps, the most efficacious that can be used. It may be produced thus: take powdered oxide of manganese and common salt, of each one ounce, mix with about two teaspoonfuls of water, put it into a shallow earthen vessel, and add about sixty drops of oil of vitriol; place the vessel in the apartment to be fumigated. The acid may be repeated three times before the manganese and salt lose their power of evolving chlorine. Chloride of lime, of soda, and of zinc, are also good disinfectants, and are much used in hospital wards, sick-rooms, water-closets, etc. The first of these is the cheapest and the most attainable; it may be used in solution, one part of the salt, which is commonly called "bleaching powder," being dissolved in one hundred parts of water; it may be sprinkled about the place, or poured into shallow vessels; its action will be quickened by the addition of a little vinegar, or muriatic acid largely diluted. The vapor of burning sulphur, of vinegar, and aromatic substances, such as cascarilla, has long been employed to hide unpleasant effluvia. The following is a good preparation for this purpose: take of bisulphide and nitrate of potash equal quantities, peroxide of manganese sufficient to blacken the mixture; rub them together in a mortar; heat a shovel or brick red-hot, and scatter some of the powder on it; then burn a small piece of paper which has been dipped into a solution of nitrate of potash two parts, sugar one part, and water six parts, and afterward dried. The two vapors will combine, and diffuse a most agreeable odor.

With regard to the application of the vapor or fumes of metallic or other preparations to the throat, or other parts, we can only say here that the mode of doing this is, to throw the ingredients upon hot iron in a closed chamber, connected with which is a spout like that

of a coffee-pot, through which the vapor is conducted to the point of application.

BLEEDING.

Bleeding from the arm is the most common mode of depletion practised; the veins there are generally so prominent and accessible, that the veriest tyro in surgery can usually manage to open them, and abstract the desired quantity of blood, although, from his ignorance of the anatomy of the part, he may chance to wound a nerve or an artery, and so do serious mischief. Three veins pass up the inner part of the forearm, the middle one, when it has nearly reached the bend, dividing into two branches. It is near this point of division of the median vein into median basilic and median cephalic, that, on account of its greater prominence, the lancet is frequently inserted; but it should be borne in mind that directly below the upper portion of this lies the brachial artery; and that the internal and external cutaneous nerves send their minute branches close up on either side, those of the former passing before the median basilic, and those of the latter behind the median cephalic vein. These considerations should induce great caution, as an aneurism might result from puncturing the artery; and neuralgia, from a similar accident to either of the nerves. It is the safest plan, if the vein is at all prominent, to open the median vein before it divides, or the main channel of the ulnar; but, in either case, the method of procedure would be this: Pass a broad piece of tape twice round the arm, about three inches above the elbow, pull it moderately tight, and tie in a bow on the outside. There should have been previously got ready a small piece of lint, moistened, and folded up into several thicknesses; a porringer or basin, to catch the blood; a broom-handle or other stout stick, for the patient to grasp; a wet sponge, and a piece of broad tape, about a yard and a half long; also a lancet, which should be perfectly clean and sharp. With the left hand grasp the patient's arm, and straighten it out, to make the veins as tense and prominent as possible; then, pressing the thumb of this hand upon the vein at a short distance below the spot where the opening is to be made, and holding the lancet between the finger and thumb of the other hand, and steadying the hand by means of the three disengaged fingers, press the instrument into the vein, and give a slight cut upward in withdrawing it, so as to make an opening sufficiently large for the blood to flow out in a thin stream, which, if the operation is properly performed, it will do steadily, as soon as the pressure of the thumb upon the vein is withdrawn, and perhaps before. From twelve to

sixteen ounces is the quantity of blood usually abstracted ; it should be ascertained beforehand how much the basin or porringer will hold. When it is sufficiently full, again pressing the thumb on the vein just below the opening, loosen the bandage above the elbow, sponge off any blood there may be about the cut, bring the edges together, and place over it the folded piece of lint previously prepared, press the thumb upon that, and then proceed to bandage thus : lay the tape obliquely across the wound, pass it round the arm above the elbow, and bring it back again over the same spot ; then let it go round the arm below the elbow, and, returning, let the two ends be tied in a secure bow, in the bend of the arm, with the free movement of which the bandage should not be tight enough to interfere, although it must be sufficiently so to retain its position. This mode of bandaging is called the figure of eight, from its resemblance to that figure. A skilful operator will make a sufficiently large and clean opening for his purpose, yet not always will the blood flow freely ; should it not, direct the patient to take hold of the stick before mentioned, and, by alternately tightening and loosening his grasp, he will give an impetus to the flow of blood, and so facilitate the completion of the operation, which is more effective if performed quickly. The bandaging can be performed more readily if the patient's arm is kept partly extended, resting upon the bleeding-stick. When the bandage is properly tied, the arm can return to its natural position, and in about twenty-four hours may be relieved of all pressure ; until the expiration of this period it should be kept quiet, but should any extra exertion cause the slipping of the bandage, and the blood burst forth afresh, it may be easily stopped by pressure, applied as above directed. During the flowing of the blood, both the countenance and the pulse of the patient should be carefully watched ; and, should the former become pallid, and the latter diminish in force and frequency, it will be necessary to complete the operation. If faintness is complained of, this must be done at once, and a recumbent position should be assumed.

The accidents likely to result from bleeding are :

1. The formation of a small tumor round the orifice, occasioned by the blood insinuating itself into the cellular tissue while it is flowing out of the vessel ; it forms very rapidly, and sometimes impedes the abstraction of the blood ; a change in the posture of the arm will frequently prevent its enlargement, and a removal of the bandage will generally do so. Should a sufficient quantity of blood not have been taken, another vein in the same or the opposite arm may be opened.

2. Inflammation of the integuments and suppuration of the cel-

lular tissue in which the vein lies. This is sometimes caused by a bad lancet, which does not make a clean cut, but rather lacerates; and it will be especially likely to ensue if there be great irritability of constitution. Unsteadiness of the arm during the operation, or want of care in bringing the edges of the wound properly together, will also tend to produce this.

TREATMENT.—Keep the arm at rest in a sling, apply sugar-of-lead lotion, give mild saline aperients, and, if suppuration ensues, poultice with bread and water.

3. Inflammation of the absorbents, often occasioned by motion of the arm soon after bleeding; indicated by swellings over the course of the larger vessels, with pains shooting from the point of venesection up and down the arm. There is much inflammation at the opening of the vein, and finally suppuration.

TREATMENT.—Same as above, with the free application of the lancet to the wound, should it assume the character of an abscess.

4. Inflammation of the vein. This is likely to arise when the edges of the wound made by the lancet do not readily unite; it may vary greatly in degree, extent, and progress, and the treatment, although in the main similar to that above recommended, will accord with the peculiar circumstances of the case. Care should be taken to prevent the inflammation from extending along the membranous lines of the vessel to the heart, by placing a compress over the vein a little above the puncture.

5. Inflammation of the fascia of the forearm, a consequence of an inflamed state of the vein where punctured; the whole arm becomes stiff and painful, the joints cannot be moved, nor the fingers extended, without much suffering; the enlargements are sometimes affected with a kind of erysipelas; there are swelling of the arm and a considerable degree of fever in the system. In about a week, a superficial formation of matter takes place, for which a way of escape should be made; it will probably form again, and require a second, and perhaps a third, opening, but eventually is quite got rid of, and the patient gradually recovers the use of his arm. The treatment the same as usual in inflammatory diseases; in the latter stages, friction for the fingers, elbow-joint, and fore-arm, with camphorated mercurial liniment; and, if necessary, extension by means of a splint.

6. Wounded nerves. This is known by a sensation of acute pain in the parts which the particular nerve supplies, such as is felt in *tic douloureux*, and other neuralgic complaints; in some instances violent convulsions have ensued, and other symptoms attributable to nervous irritation. If anodynes do not succeed in allaying this,

a complete severance of the injured nerve is recommended ; and this, of course, only a surgeon would attempt.

CUPPING.

The abstraction of blood by means of the cupping-glass, in which a partial vacuum has been produced by the application of heat within, causing the air to expand ; this, as it cools, condenses again, and so draws up the skin of the part to which the glass is applied, and causes the blood to flow through the openings made by the concealed lancets of the instrument called a scarificator, which is a metal case containing several lancets (ten or twelve is the general number) of semicircular form, which, when set, on the pressure of a spring revolve rapidly on an axis, and, protruding through slits in the bottom of the case, make so many clean cuts, with very little pain to the person operated on ; the depth of these cuts can be regulated by a screw, according as the judgment of the operator directs ; the setting of the instrument is effected by means of a trigger. Cupping, although it requires a quick and practised hand to do it expertly, and with perfect success, is frequently performed as a purely domestic operation, nor can there be any objection to this, provided the desirability of extracting blood from any particular part of the frame is first clearly ascertained. The mode of operation is this : Let the part to be operated upon, most frequently the neck, the back, or the loins, be bared, and the patient placed in a convenient position—one which can be maintained for a considerable space of time. First, apply to the part a sponge, or a flannel dipped in hot water, to excite a quicker circulation ; then, take a cupping-glass—one of several previously placed at hand—into which has been put a small piece of paper saturated with spirits of wine ; place one edge of the glass on the skin of the patient ; ignite the spirit by the introduction of a match or screw of paper, and immediately press the glass closely down ; it will adhere by the power of suction until the air is admitted by the insertion of a finger-nail beneath the edge. Fix two or three glasses in this way ; then remove them ; and, to the centre of each swelling of the skin which they raise, apply the scarificator, pressing it closely down each time, and causing the lancets to make incisions by the means already described ; do this rapidly, and again affix the glasses, charged with spirit. If this is properly done, the blood will flow rapidly into them ; and when half-filled, or more, they should be removed, the cuts sponged with warm water, to clear them from coagulated blood, and fresh glasses applied, continuing in this way until the necessary quantity of blood is ab-

stracted; this may be from six to twelve ounces, according to circumstances, but eight or ten ounces is the usual quantity. If the blood does not flow freely, or, as is sometimes the case, ceases after a short time to flow at all, a removal of the glasses, and warm sponging, must be tried; if this is not effectual, cross-cuttings with the scarificator should be made, or fresh incisions on a part more favorable for the operation; this should not be where there is much fat or muscle, nor where the surface is very uneven or covered with hairs, as in neither case can the glass fix sufficiently close to exclude the air. None but a very dexterous cupper should operate on a part where the skin is at all thin, as on the temple, where nice judgment and delicate manipulation are required. Having taken the requisite quantity of blood, and removed the glasses, which may be done without spilling any of the fluid, if, simultaneously with lifting the upper edge of the glass, a sponge or flannel is passed rapidly over the surface, so as to sweep the blood into the vessel, cleanse the incisions, and then apply over them strips of soap or adhesive plaster; the bleeding ceases immediately, and the cuts generally heal in a few days, without pain or annoyance of any kind.

The process of extracting blood by cupping was practised by the ancients, and some barbarous nations still perform it in a very primitive way. Incisions are made by means of a sharp flint or knife, and over these is applied a cow's-horn with the top removed, to the aperture of which the operator applies his mouth, and literally sucks the blood of his patient. The operation as now performed is safer for the unqualified practitioner than either leeching or bleeding; and it frequently affords very speedy relief in inflammatory and some other diseases.

LEECHES.

Before applying a leech, it is best to let it crawl for a short time on a clean dry napkin or towel; and, if after that there is any difficulty in getting it to fix, smear the part with a little milk and sugar mixed, and made rather warm. If, in consequence of cold, the creature appears sluggish and inactive, put it into water at a temperature of about seventy degrees, with a couple of table-spoonfuls of porter in it. Should it be desirable to detach the leech before it has done sucking, do not pull it off forcibly, but sprinkle a few grains of salt on its head. The old practice, of putting the creature when gorged into a plate of salt, is not a good one; the better plan is to immerse it in a solution, not very strong, of this substance, and, when it has thrown up as much blood as it will, to "strip" it thoroughly, by holding the tail end firmly between the finger and thumb of the

left hand, and drawing it steadily between those of the right, nearly up to the head. This is a disagreeable process, but it is the most effectual for cleansing the animal, so that it may be preserved for future use. It should be put into clean fresh water, which, for the first three or four days, should be changed twice a day; afterward, every four or five days will do. The temperature of the water should not be lower than fifty degrees Fahr., and the place in which it is kept should be airy, and free from strong odors—the vessel, a wide-mouthed jar or bottle, about half-filled, with a little clean sand at the bottom; the top covered with a piece of muslin or gauze.

Upon an average, leeches are said to take about one drachm of blood each, which, with what flows after, may be increased to half an ounce; this may be taken as the basis of calculation required as to the quantity to be abstracted.

It is, however, impossible to regulate the flow very nicely by this method of phlebotomy; therefore, in all cases where bleeding or cupping can be at all conveniently performed, one or other of these means should be resorted to: when leeches are applied, it should be over a bone, against which pressure can be made, if necessary, to stop the bleeding, and never on a soft part, such as the neck or abdomen, especially with children, who have sometimes died from loss of blood, the flow of which it has been found impossible to stop, in consequence of there being no basis for the application of pressure. The best and simplest way of applying leeches is to confine them to the desired spot within an inverted wineglass, through the sides of which it can be seen when they have bitten; a large pill-box, which is sometimes used, has not this advantage, and must be frequently lifted, by which the animals are disturbed, and bites sometimes prevented. Putting them on individually, holding the leech by the larger end in a towel or napkin, is a very tedious process, and letting them crawl at will over the surface, a very uncertain one, as to the exact spot on which they will fasten. If it is to such a part as the interior of the mouth from which the blood is to be extracted, a leech-glass must be used in this manner: Put the leech, head-foremost, into the broader end of the glass; it will naturally slide to the smaller end, which must be applied to the gum or other diseased spot, so that the creature cannot escape, and if at all inclined to bite will soon do so; the glass must be kept in its position until the sucking is over, and the hold of the leech is loosened, when it can be removed without any unpleasant contact with the mouth. This mode can also be adopted with the vagina, or other part near the surface of the body whence it is desirable to abstract blood.

Leeches are unable to bite where the skin is very hard and

tough, and they will seldom fix where there are any hairs. If the surface on which they rest is not smooth and soft, they will often drop off before they have sucked their fill, and this is too likely to occur if they are suffered to depend from the point of suction. When they come off, it is usually desirable to encourage the flow of blood, and to this end a hot bread or bran poultice should be applied; or, if this is objectionable on account of the moisture, several folds of linen made quite hot and placed over the bites will do; this should be replaced with dry folds when they become saturated with blood. In many cases, however, and especially with children, the difficulty is to stop the bleeding before it proves too exhausting; this may sometimes be accomplished by placing a pad of lint over the bite, and keeping a firm pressure on it with the forefinger for some minutes, that is, supposing there is bone beneath to press upon. When the flow seems arrested, it is best not to remove the pad at once, but keep it in its place with strips of adhesive plaster. If the simple lint does not answer, try a pad soaked in a strong solution of alum, and, if this fails, apply a pointed piece of lunar caustic to the bite. As a last resource, take a sewing-needle, pass it through the wound from side to side, and then twist cotton or thread tightly round it in the letter-S form.

It has sometimes been found needful to apply actual cautery—a wire or skewer heated to a white heat. These are desperate expedients, but it is better to resort to them than let a child or weakly person bleed to death. Generally, pressure, firmly and judiciously applied, will be sufficient.

It should be borne in mind that leech-bites, after the bleeding has apparently stopped, will sometimes burst out afresh; therefore, children who have been leeches and put to bed ought to be carefully watched. It is best, if possible, to avoid applying leeches to a child toward night, on account of this danger.

In persons predisposed to inflammation, a leech-bite will sometimes assume an angry, erysipelatous appearance. Perhaps there will be considerable swelling and pain, but this is generally subdued by the application of Goulard's lotion.

BLISTERS.

The chief blistering agent used by medical practitioners is the Spanish fly. But the application of any highly-irritating substance will produce the same effect. Steam, strong ammonia, mustard, horseradish, croton-oil, tartar-emetic, and many other applications, will excite this inflammatory action, and cause the formation of a blister, but

scarcely any so speedily and so effectually as the agent first named, which is generally applied in the form of a plaster—the *emplastrum cantharidis*, or *lytta*, of the pharmacopœia. There is also an extract prepared by evaporating a tincture composed of four parts of the flies to one of strong acetic acid and sixteen of rectified spirits; and *acetum lyttæ*, formed of the above acid and the insects. The latter preparation has merely to be applied with a camel-hair brush; it is very speedy in its operation. The old and still generally pursued method is to spread the blister plaster pretty thickly on leather, adhesive plaster, calico, or linen, and place it on the part affected, putting a handkerchief round to keep it close to the skin. In ten or twelve hours it ought to produce the desired effect; it may then be taken off, the vesicle clipped with a pair of sharp scissors to let out the fluid, which should not be suffered to run down the body, as it will produce painful excoriations; keep the blister dressed with spermaceti or elder-flower ointment, until healed. Sometimes a little of the powdered fly is sprinkled over the outside of the plaster when spread, and previous to its application, and sometimes a few grains of tartar-emetic; these increase the activity of the application, but are apt to produce *strangury*.

The best time for the application of a blister is the evening, and, as soon as it is on, the patient had better retire to bed, and, if possible, get to sleep. If at the end of twelve hours it is found not to have risen well, it must remain on longer. With persons far advanced in life, or who have a particularly dry skin, or are in a state of great nervous depression, sixteen or even twenty hours may be required for the full effect of the irritant to be produced. The action may be assisted, and the removal of the plaster facilitated, by rubbing the part, previously to application, with olive-oil, or by interposing a thin piece of muslin between the plaster and the skin; this, of course, refers to the old form of application. For children, and those who have tender and delicate skins, the action of a blister should be carefully watched, as the effect is often produced in a shorter time than is usually required. The plaster should be removed as soon as it begins to rise, and a warm bread-poultice applied; under its influence the full rising will generally take place. When the vesicle is punctured, and the fluid emptied upon a cloth placed to catch it, allow the membrane to subside and apply the dressing. It is sometimes erroneously imagined that the rising has only taken place at one part of the vesicated surface, because a bladder only appears there; but a close examination will show that the bladder extends over the whole, but is only obvious at the lower portion, where the fluid has gravitated; sometimes, instead of one

large bag, there are several small vesicles—these should all be clipped, unless very small. When, instead of watery fluid, the blister contains a thick pus, which does not flow out, there should be no squeezing to make it do so; it will gradually ooze out into the dressing, which may be ointment spread upon lint, as before mentioned, or cotton wadding, which has been recently employed with good results.

“Flying blisters” are those which are taken off as soon as redness is produced: weak mustard-poultices will answer this purpose. The non-rising of a blister frequently gives much alarm, it being a popular impression that the absence of susceptibility of the skin is owing to a deficiency of vital power; but very trivial causes will sometimes prevent the expected effect taking place.

Persons liable to affections of the kidney should never be blistered, except with medical sanction. Much harm is often done by resorting too hastily to this method of obtaining relief in cases of fever and acute inflammation; by the irritation produced, the general symptoms are aggravated, without affording the expected amount of local relief. It is always best to consult a surgeon before making the application.

By all this it will be seen that blisters are chiefly useful as counter-irritants. They are applied over the seat of some active disease, as *pneumonia*, *gastritis*, *hepatitis*, *phrenitis*. They are also applied with good effect in spasmodic affections.

ISSUE.

An ulcer purposely made, and kept open for the cure or prevention of disease: this may be termed an artificial sore, from which a discharge of matter is kept up for the purpose of producing derivative action, and thus affording relief to some part of the system threatened or attacked. There are several ways of forming an issue, such as applying caustics, or a red-hot iron, to the part; but the most common, and perhaps the best plan for popular use, is that made by pinching up a fold of the skin, and making an incision with a lancet, or other sharp instrument, sufficiently large for the insertion of two or three peas, which are kept in by a strip of adhesive plaster. The irritation which they occasion will in a few days produce a discharge of matter; the peas should be taken out, and fresh ones inserted every day, while it is desirable to keep the issue open. A blister, kept open by repeated renewals of the irritating matter, is an issue; so is an application of ointment of tartarized antimony, or any irritant sufficiently strong to produce a running sore. Caustic

potash is sometimes used for the purpose, thus : Spread a piece of leather with diachylon, cut a hole in the centre as large as the issue is desired to be, warm, and stick it on to the seat of the intended issue; then spread the potash over the circular patch of skin left unprotected by the leather—it will soon change to a brown color; then apply a linseed-poultice, and renew it night and morning until the slough comes out, and leaves a small cavity, into which put two or three peas, previously prepared by being soaked in a solution of sulphate of copper, in the proportion of about half a drachm to an ounce, and dried; over the peas place a piece of soap-plaster, and secure it tightly to the surrounding skin, and also by a bandage; the moisture will cause the peas to swell and press inwardly, and so irritate and inflame the wound, causing a formation of matter; they must be renewed daily, as in the cases before mentioned.

PLASTERS.

These are compounds of gummy resins, and other adhesive and tenacious substances, used as outward applications. They may be either simply adhesive, as the common diachylon, or sticking-plaster, or the isinglass or court-plaster; they may be protective, as the lead-plaster; stimulating, like Burgundy-pitch; or warm, like cummin-plaster, etc. Out of a long list of pharmaceutical preparations of this class, we cite the following as the most adapted for domestic use: Common adhesive or diachylon, isinglass, and soap plasters, are simply protective, as is also the lead-plaster; belladonna and opium, anodyne; cantharides, or lyttæ, blistering; cummin, and galbanum, warm and stimulant; mercurial, discutient; robrans, or iron, supporting and strengthening—the latter is commonly used as an application to weak or relaxed parts, such as the wrist or ankle, after a sprain; or the back, when the spine wants support; both cummin and galbanum are used for the same purpose, but these are too stimulating for many skins, causing unbearable irritation; indeed, with some, even robrans will do this; in such a case the lead-plaster had better be applied. The latter is one of the best protections for the backs and other parts of those who are obliged to lie much in one position. This should be kept in the roll, and spread when wanted; as, if kept spread, it very soon cracks and peels off. Most plasters intended for use in this or other temperate climates had better be purchased ready for use, as the spreading, which is done by machinery, is much more smooth and even than can be effected by the hand. Emigrants going to hot countries should take plasters in the roll, and spread the mas required, upon any convenient

material; even paper will do, if leather or calico cannot be readily procured; they should take with them a plaster spatula.

When wanted for use, thrust the flat end into a fire, and let it remain until sufficiently heated to dissolve the plaster without causing discoloration; before it is applied to the substance to be melted the heated part should be rubbed on a mat, or other rough place, to cleanse it; if much smoke arises on the application of the iron to the roll, the former is too hot, and should be dipped into water. Let the plaster drop all over the substance on which it is to be spread, and then with the spatula blend the little lumps, and rub it down until an even surface is obtained; it is best to leave a clear margin of about a quarter of an inch all round. It is a popular fallacy to suppose that plasters exert any healing influence; they merely protect injured parts from external influences, and, by keeping the edges of wounds, etc., in close apposition to each other, allow the healing powers of Nature to have fair play. For wounds, cuts, etc., there is no better adhesive application than the common diachylon and soap plasters, and one or other of these should always be kept in a house.

To remove plasters in the least painful manner, and without danger of injuring the raw parts beneath, it is necessary to damp them for some little time with a sponge soaked in warm water, or, if it is in the hand or any part that can be so treated, immerse it therein for some time; the plaster will then come off easily, if the strips be taken up separately, beginning at the side farthest from the seat of injury.

POULTICE.

On the utility of poultices in cases where the application of warmth and moisture is required we need not here insist, for all who have had any thing to do with the treatment of disease are fully aware of this. Very often, however, they fail of producing the expected good effects because they are not properly prepared or applied; we therefore deem it well to give directions for the preparation of those most commonly employed.

Bread-and-Water Poultice.—Put into a basin a sufficient quantity of bread-crumbs, and cover with boiling water; let the mixture stand with a plate over to keep in the steam for a minute or two, then draw off the water, and turn out the contents of the basin into a piece of folded linen, sufficiently large to cover the affected part; to which, having first spread over it a little lard, to prevent its sticking when dry, apply the poultice next the skin, keeping it close by means of a bandage, or wrapper of some kind. If not required

warm, merely soak sufficient bread in cold water, and apply it, when saturated, on a fold of linen, as directed above.

Linseed-meal Poultice.—Pour some boiling water into a basin, and add gradually the meal, stirring with a stick until the mixture becomes quite a stiff paste; then spread it an inch thick on folded linen, and apply.

Mustard-Poultice.—To make this, take as much as may be required, in equal proportions, of best flour of mustard and linseed-meal, or bread-crumbs; put them into a basin previously warmed, and add gradually as much boiling water as may be necessary; grease, and apply as above directed; or simply mix the mustard with hot water, spread the paste on linen, place over it a piece of muslin, and place it next the skin; if it is desirable to make it more stimulating, some scraped horse-radish will have this effect. The length of time that a mustard-poultice may remain on must be regulated in great measure by the feelings of the patient.

Yeast-Poultice.—Add to half a pound of linseed-meal, in a basin, a quarter of a pint each of beer-yeast and water heated, mix gradually with spoon or stick: spread on linen, and apply. It should be renewed every six or eight hours, as should the linseed-meal poultice.

Charcoal-Poultice.—Add to a common bread-and-water poultice, while quite hot, about an equal quantity of linseed-meal and charcoal; mix, spread on linen, and apply. Useful for gangrenous and fetid sores.

Salt-and-Water Poultice.—This is made like one of bread and water, by merely dissolving a tablespoonful of common salt in the water previous to mixing: this is recommended by Cooper for chronic abscesses.

Almost any soft substance which will retain heat and moisture may be used to form a poultice, which should be perfectly smooth; and free from lumps or hardness; recently a preparation called spongia piline has been employed; this has merely to be soaked in a hot liquid, drained out, and laid on with oil-skin, or some other waterproof material, over it; indeed, all poultices should be so covered, the heat and moisture being thus retained longer than they otherwise can be.

Arrow-root Poultice.—This is recommended as a soothing application for irritable sores, etc. Hops, chamomiles, scraped carrot and turnip, and a variety of other substances, are also used for this purpose, but it is doubtful whether they possess any advantages over those more commonly employed.

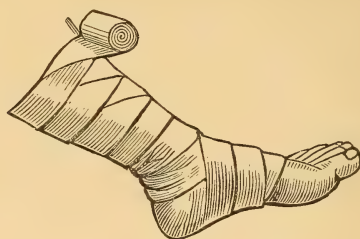
Poulticing of wounds and abscesses is sometimes carried too far.

Up to a certain point it is good ; but when the discharge becomes thin and serous, and increases rather than diminishes, and the healing process appears to stop, it is time to stay this kind of application, and substitute water-dressing, which often gives a more healthy character to the affected part.

BANDAGES.

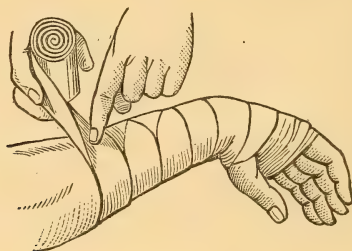
There is not a more important art connected with household surgery than that of bandaging. To do it well requires much practice and no little judgment ; even hospital dressers are not always perfect in this branch of their operations ; and "family doctors" not infrequently make a sad bungle of bandaging a leg or an arm. On the other hand, we have seen it so deftly performed, that no piece of machinery work could excel it ; so smooth and regular, so compact and firm, every fold and diagonal turn falling into its exact place, and maintaining its proper relative position ; each layer of even texture fading off, as it were, from its fellow, and in turn supporting another, with no undue strain nor pressure on any part : the very perfection of close binding. We do not expect many of our readers to accomplish this ; but it will be as well for them to understand how it is done, that they may, when the emergency arises, know how to go about it. First of all, what is a bandage ? Something that binds, a fillet, a piece of linen or cloth for binding up a wounded limb. The material employed for this purpose is usually stout unbleached muslin, from two or three to nine or ten inches wide, and from six to twelve yards long ; the former length and breadth will do best for the leg. If commenced at the ball of the foot, and evenly applied, so that each fold overlaps the other about one-third, it will reach to the knee ; the following cut will best show the mode of application. The bandage having been first tightly rolled up, is taken in the right hand of the operator ; the end is passed under the foot, and held there by the left hand until it is secured by one turn of the bandage over it ; an upward direction is then taken, so that a couple of folds bring the bandage up to the front of the leg, over the instep ; the next turn will naturally pass above the heel behind ; and then, if proper care be observed, it will go on fold above fold, each overlapping the other slightly, all up the leg ; the bandage is passed from the right to the left hand each time that it goes round the leg, and great care should be taken to hold it firmly, and equalize the pressure, as well as to smooth out any wrinkles that may occur in the process of binding. A firm and even support is thus afforded to the limb, which is not likely to

crease, or get displaced by the motion which may be afterward necessary; it may be made fast above the calf by a couple of pins, or a needle and thread. Great care should be taken in this, as in all



similar operations, to get the bandage rolled up tightly and smoothly, before commencing—it may thus be grasped in the hand, and kept well under the command of the operator, who should on no account let go his hold of the bandage, so as to relax the pressure.

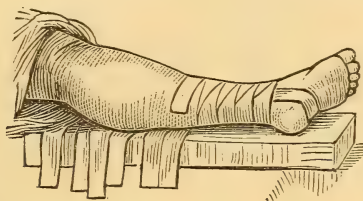
The arm does not require so long or broad a bandage as the leg; about two inches, by three or four yards, being the average size: this limb is rather more difficult to manage, half turns being necessary to effect a proper envelopment. How this is effected may be seen by the following cut; the bandage is folded back upon itself, so as to take a different direction, and cover the space which would be left exposed by the ordinary method of folding; these half turns, unless they are done tightly and evenly, will be very apt to slip and derange the whole binding. Some operators avoid half turns, by letting the roller take its natural course, and, then coming



back to cover the exposed parts; but this method, besides requiring a larger bandage, does not effect the required purpose so neatly and efficiently. One mode of fastening a bandage is to split it up a short distance, so as to leave two ends, which can be passed round the limb, and tied. It should always be borne in mind that the chief art in applying bandages is to give firm and uniform support,

without undue pressure upon any part; and, to effect this properly, the strain in winding should be upon the whole roll held in the hand, and not upon the unrolled portion of it; and this strain should not be relaxed during the progress of the operation.

The next cut represents the mode of applying what is called a many-tailed bandage, useful to apply over a wound, or wherever it requires frequent changing, or in cases in which it is desirable not to exhaust the patient by much movement of the limb. This is a strip of calico somewhat longer than the limb to be enveloped; on it are sewn, at right angles, other strips, about one-half longer than the circumference of the limb, each overlapping the other about one-



third of its breadth, so that, when drawn tightly over in regular succession, each secures the other; the end of the strip passes under the heel, and, coming up on the other side, is made fast to the bandage there, and so all is kept firm.

For keeping poultices on the lower part of the back, or in the groin, a cross-bandage is used, the fashion of which is this: make a calico band large enough to pass round the loins, and tie a buckle in front; to this is attached another piece, which proceeds from the centre of the back to the anus, where it divides into two, which pass under the thighs, up on either side, and are fastened to the band in front. The bandage used to close a vein after bleeding is commonly called a figure of eight; it is more fully described under Bleeding.

For a sprained ankle, place the end of the bandage upon the instep, then carry it round, and bring it over the same part again, and thence round the foot two or three times, finishing off with a turn or two round the leg above the ankle.

For a sprained wrist begin by passing the bandage round the hand, across and across, like the figure 8; exclude the thumb, and finish with a turn or two round the wrist.

For a cut finger, pass the bandage, a narrow one, round the finger several times, winding from the top, and, splitting the end, fasten by tying round the thick part above the cut; or, if it be high up, tie round the wrist.

The best bandage for the eyes is an old silk handkerchief passed over the forehead, and tied at the back of the head. For the head itself, it is best to have a cross-bandage, or rather two bandages; one passing across the forehead, and round the back of the head, and the other over the top of the head, and below the chin, as in the fol-



lowing cut. Or, better than this is, perhaps, a large handkerchief which will extend all over the forehead and crown, two ends of it

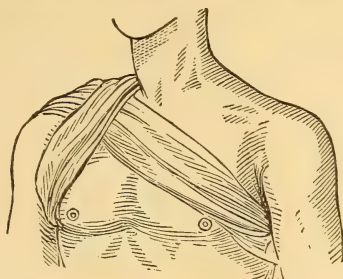


passing to the back, and, after crossing from thence round the neck, then tying the other two beneath the chin.

For a bandage to support a pad or poultice under the armpit, a handkerchief may be used, put on as in the following cut; or a broad piece of calico, arranged in the same way.

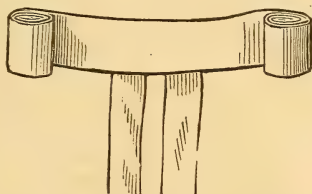
For fracture of the ribs, bandages should be about nine inches wide, and drawn round the body very tightly; in this case, as in that of any other fracture or dislocation, only a properly-qualified person should attempt their application.

We have not yet spoken of the T-bandage, which is simply a broad band to pass round the body or elsewhere, having attached to it one of the same width, or narrower, like the upright part of the



letter after which it is named ; or, there may be two stems, if they can be so called, in which case it is a double T-bandage, as under.

Starch-bandages are those in which the roller, before it is put on, is saturated in a strong solution of starch. Sometimes a covering of brown paper is put over this, and another dry bandage is ap-



plied ; this makes a firm and compact case for the limb : it is useful in cases of fracture, especially if the patient has to be removed to a distance. Sometimes, when it is not desirable to make the covering so thick and durable, the displacement of the bandages is guarded against by brushing a weak solution of starch or gum over the folds.

Bandaging should be performed in nearly all cases from the extremities upward, or inward to the heart, except where the injury is situated above the seat of vital action. If they give much pain, there is reason to suspect inflammatory swelling beneath, and they should be loosened, if moistening with cold water does not relieve the pain. Flannel for bandages is used where warmth as well as support is required.

THE END.



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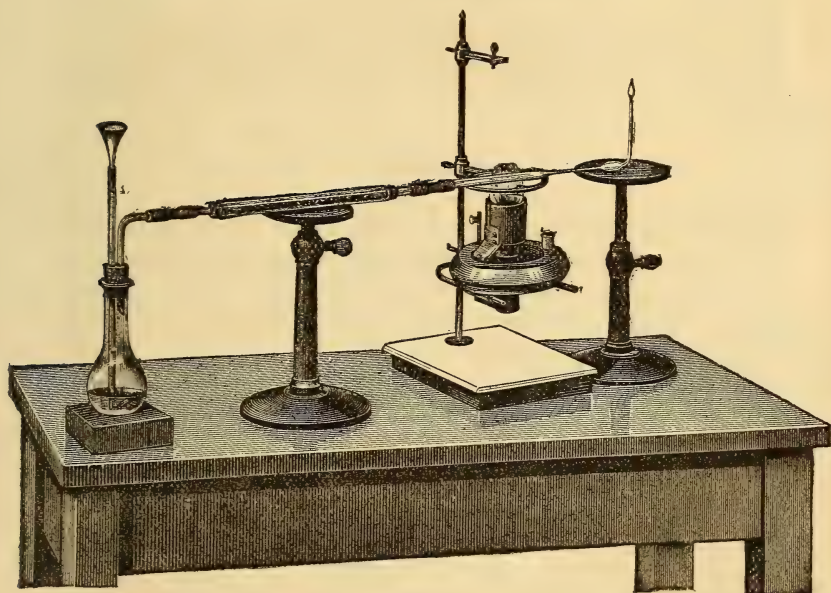
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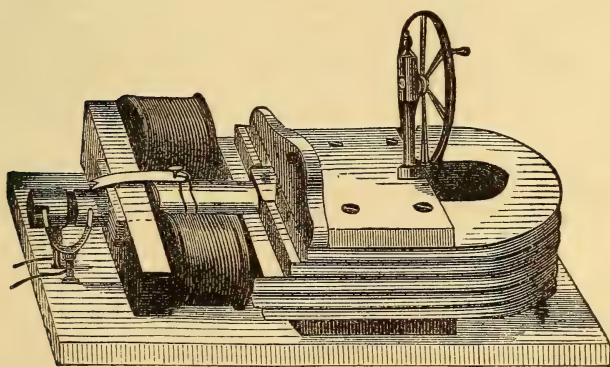
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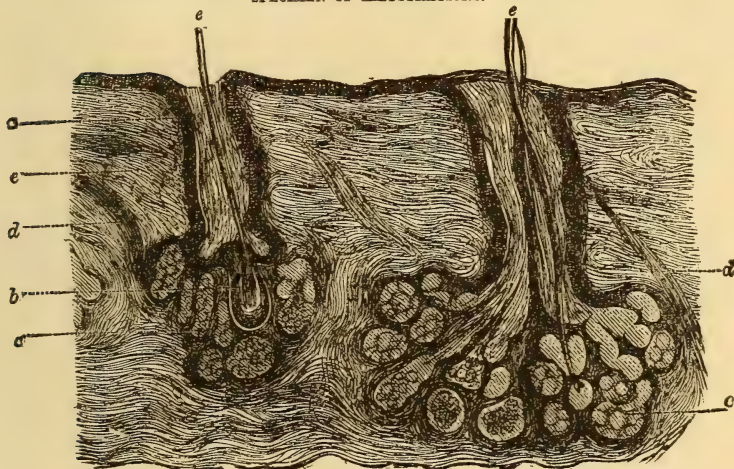
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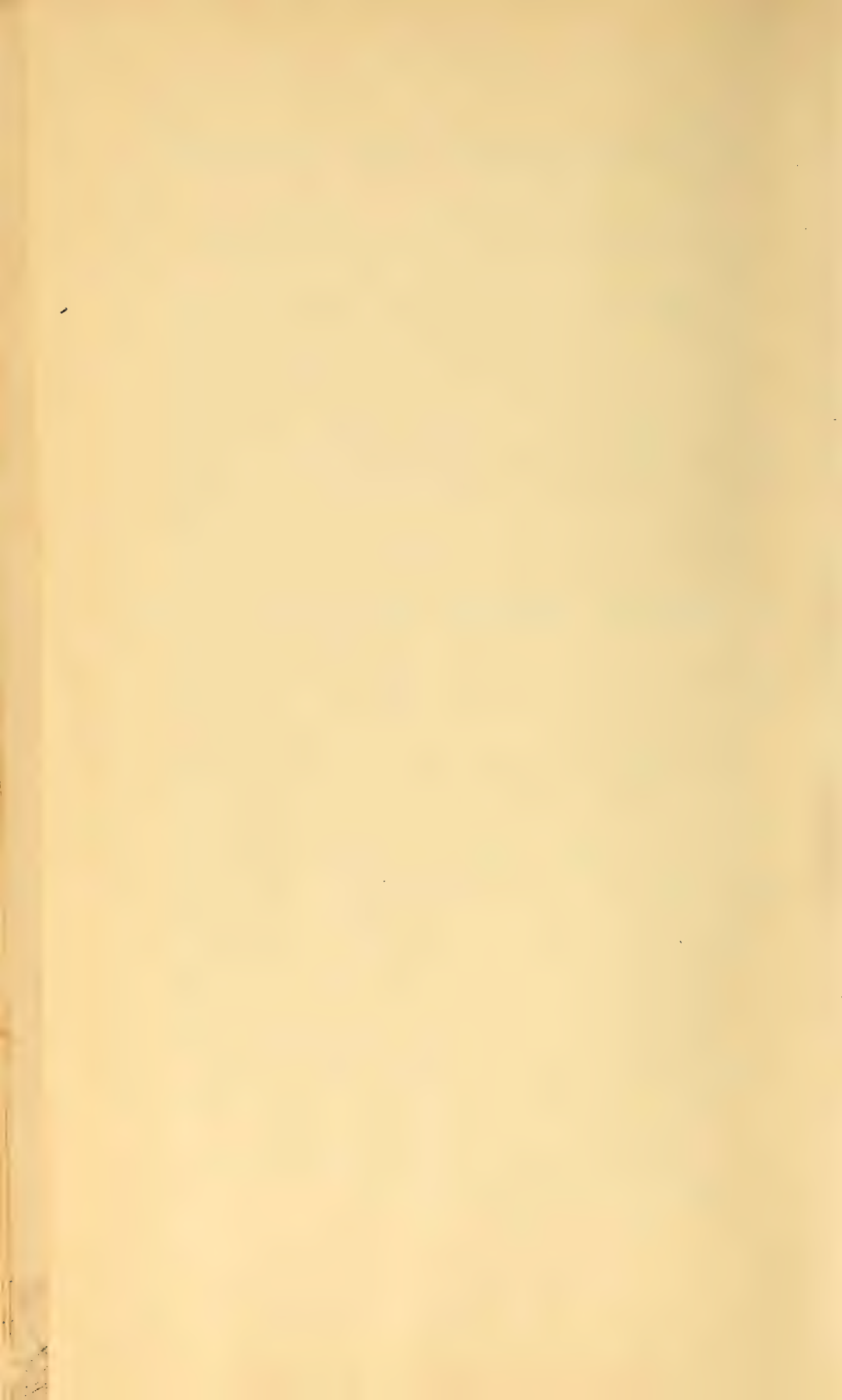
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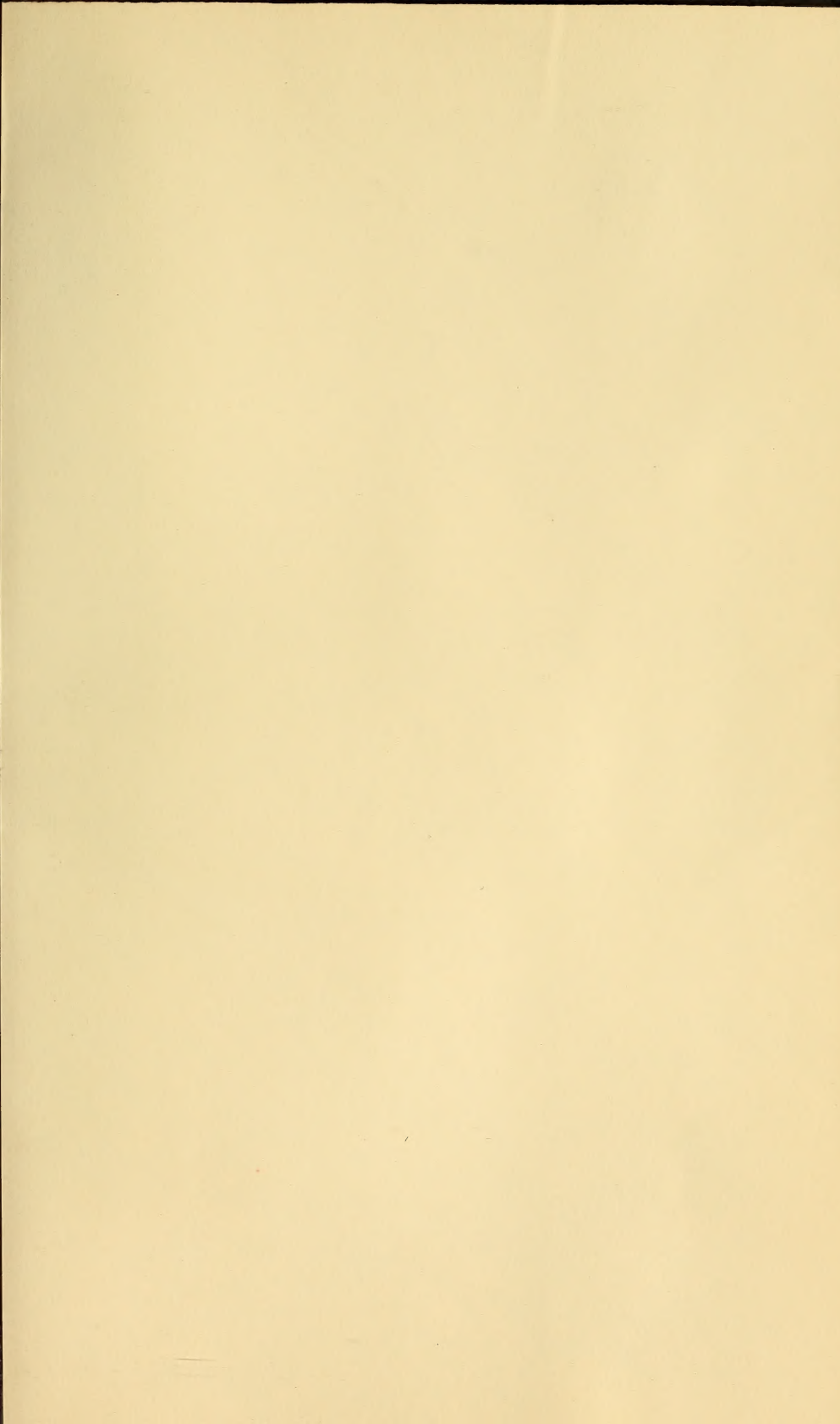
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